Mathematics

Grade 6

DETROIT
PUBLIC SCHOOLS
COMMUNITY DISTRICT

Dear DPSCD Families,

The Office of Mathematics is partnering with families to support Distance Learning while students are home. As your child's first teacher, we empower you to utilize the resources provided to foster a deeper understanding of grade-level mathematics.

Students in grades K-8 will work from our core curriculum, Eureka Math, utilizing this Academic Packet supported by Knowledge on the Go recorded videos. The videos have a Eureka Math instructor presenting a lesson for students to engage in grade-level mathematics. The instructor will guide students to work through the lesson by completing problems simultaneously with your child and/or asking them to pause the video for independent solving and then check. As the instructor demonstrates sample problems in the Problem Set, Application Problems, Fluency Activities, Examples and/or Exercises, parents feel free to engage your child in this work. Ask students to show work and explain their answers. When appropriate have students add models or drawings to help them solve and record answers in complete sentences.

Daily lesson guidance can be found on the pages that follow. Each day has been designed to provide you access to materials from the Eureka Math Knowledge on the Go website https://gm.greatminds.org/en-us/knowledgeonthego . After you have accessed the site, click your child's grade level, and scroll down to find the desired lesson. The resources are found at the bottom of the page and we recommend the lessons be completed in order.

SCAN ME

Eureka Math is our core curriculum, but we also recognize it is necessary to differentiate mathematics instruction to meet all students' needs. Students took the **i-Ready** diagnostic earlier this year and it created a Learning Path for students to follow. Students work weekly on the goals set on the i-Ready Learning Path. After their core math lesson, if able, we ask that students continue to work on their Learning Path by logging on to www.clever.com and selecting the i-Ready icon. In addition, students may also access the i-Ready Teacher-Assigned Lessons which would be an enrichment to grade-level content and should be utilized if extension activities are needed.

SCAN ME

If one-on-one, live support is required, please feel free to call the **Homework Hotline** at 1-833-466-3978. Please check the Homework Hotline page for operating hours. We have DPSCD mathematics teachers standing by and are ready to assist.

If students need additional help, and parents have internet access, please refer to the **Homework Helper** document and sign up for an account. Homework Helper provides step by step explanations of how to work the Eureka Math problems. Also, provided on the

SCAN ME

Eureka Math Knowledge on the Go website is a plethora of Additional Resources that consists of Templates, Homework, Parent Tip Sheets, and more.

We appreciate your continued dedication, support and partnership with Detroit Public Schools Community District and with your assistance we can press forward with our priority: Outstanding Achievement. Be safe. Be well!

Deputy Executive Director of K-12 Mathematics

Parents,

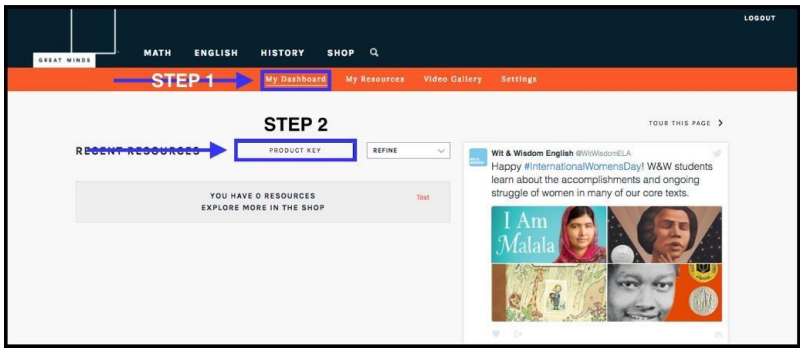
Find additional resources aligned to Eureka Math here:

EUREKA MATH™

ACCESSING HOMEWORK HELPER eBOOKS

STEP 1: CREATE AN ACCOUNT
Sign up for a free account at GreatMinds.org/store/signup.

STEP 2: ACCESS YOUR DASHBOARD
Once you have created an account at GreatMinds.org, you will be taken to your Dashboard.



After you have logged in you can also access your Dashboard by clicking “MY DASHBOARD” in the upper right-hand corner of the site.

STEP 3: ENTER YOUR PRODUCT KEY
In your Dashboard you will see several buttons, select “PRODUCT KEY” and enter **H00688525** to access your Homework Helper eBook.

STEP 4: ACCESS YOUR HOMEWORK HELPER eBOOK
After you’ve entered your Product Key, select a grade-level, and the Homework Helper eBook will be added to your Dashboard. Click “LAUNCH PRODUCT” to navigate into the eBook. Note: if you are viewing the Homework Helper eBooks on a mobile device or tablet, we recommend using landscape view.

Questions? Contact us at info@GreatMinds.org.

Clever—How to access DPSCD Curriculum Applications through Clever.com

DETROIT PUBLIC SCHOOLS COMMUNITY DISTRICT
Students Rise. We All Rise.

1 Click on the Clever desktop shortcut or open Google Chrome and go to clever.com/in/dpscd

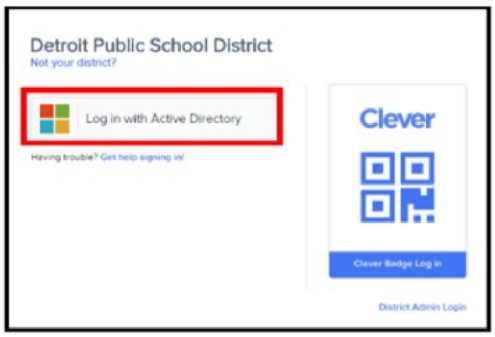
1 

OR Clever.com/in/dpscd

2 Click "Log in with Active Directory"

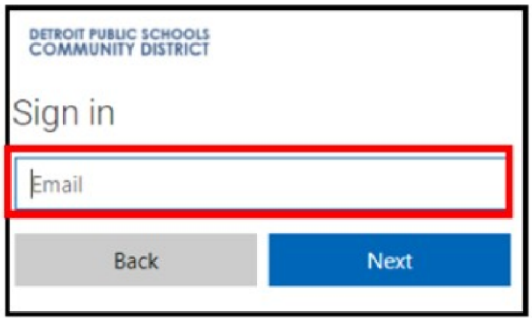
Teacher's will use the same credentials that they use to login to their email.

Student's will follow the following format listed below

2 

3 Enter student's username in the space identified. The username will consist of the students ID # with @thedps.org appended on.

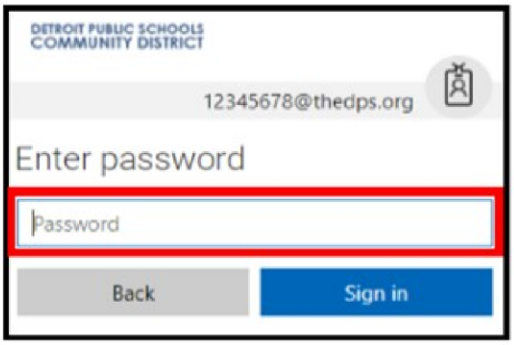
For example 12345678@thedps.org

3 

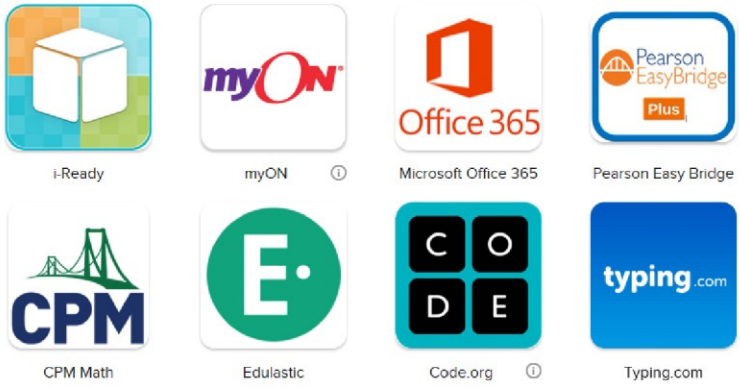
4 Enter the student's password. The password will consist of the following:

First letter of first name in upper case
First letter of last name in lower case
2 digit of their birth month
2 digit of their birth year
01 (male) or 02 (female)

For example: Jane Doe's birthday is May 13, 2004. Her password is Jd050402

4 

5 Click on the application you are interested in accessing

5 

Grade 6 Mathematics

WEEKLY DISTANCE LEARNING STUDENT SCHEDULE

4/14/20 to 4/17/20 Week 1 (4 days)

Directions: **Parents:** Assist students with accessing the "Knowledge on the Go" videos, Problem Sets in this packet, and i-Ready through the Clever app. Also, monitor student's progress while working on the videos and/or online lessons.
Students: Click or watch the "Knowledge on the Go" video each day and complete the daily Problem Set. Visit i-ready to continue your learning path and complete Teacher-Assigned lessons.

Target Standard(s) 6.EE.A.3

Module Module 4: Expressions and Equations

Topic Topic A: Relationships of the Operations

Materials Needed :

- Access to Knowledge on the Go Lesson Videos & Resources including Templates & Homework Helpers which provide guidance with worked examples for each lesson.
- Clever Access for i-Ready (see links and QR codes below)
- Paper, Pencil, Academic Packet including Problem Sets

SCAN ME Knowledge on the Go Videos

SCAN ME clever.com

SCAN ME Additional Resources

	Daily Lesson (50 minutes)	Extension (10-15 minutes)	Intervention (15 minutes)
Day 1	Knowledge on the Go Lesson Materials for Module 4, Lesson 1	i-Ready "Teacher Assigned" Lesson clever.com	i-Ready "My Path" Lesson clever.com
Day 2	Knowledge on the Go Lesson Materials for Module 4, Lesson 2	i-Ready "Teacher Assigned" Lesson	i-Ready "My Path" Lesson
Day 3	Knowledge on the Go Lesson Materials for Module 4, Lesson 3	i-Ready "Teacher Assigned" Lesson	i-Ready "My Path" Lesson
Day 4	Knowledge on the Go Lesson Materials for Module 4, Lesson 4	i-Ready "Teacher Assigned" Lesson	i-Ready "My Path" Lesson

Click the Knowledge on the Go Lesson Materials link or scan the Knowledge on the Go QR Code in the Materials section.

Then scroll down and click on the corresponding Module and Lesson. Problem sets are included in this academic packet.

Daily Fluency Practice

Mathematical Fluencies:

In Grade 6, students are expected to know multi-digit division and multi-digit decimal operations by end of year. This is a great time to practice these skills.

Lesson 1

Standard	6.EE.A.3
Learning Target	Students can build and clarify the relationship of addition and subtraction by evaluating identities such as w – x + x = w and w + x - x = w.
Launch	SCAN ME ***Recommended***: Students will *view the "Knowledge on the Go" video for* ***Module 4, Lesson 1****. Scan* the "Knowledge on the Go" video along with the instructor. We encourage parents to assist students with accessing and engaging with the "Knowledge on the Go" videos.
Guided Practice	***Recommended:*** *Students will complete the Problem Set* for ***Module 4, Lesson 1*** *from the "Knowledge on the Go" video along with the instructor. These are included in this academic packet.*
Closing	**Recommended**: Recommended: Students will reflect and share their learning on Module 4 Lesson 1.
Extend	SCAN ME ***Recommended:*** Students will complete the "Teacher Assigned" lesson in i-Ready. Visit Clever.com to access i-Ready.
Intervention	***Recommended****:* Students will work on their individual Learning Path (My Path) in i-Ready. Visit Clever.com to access i-Ready.

Click the Knowledge on the Go Lesson Materials link or scan the Knowledge on the Go QR Code in the Materials section. Then scroll down and click on the corresponding Module and Lesson. Problem sets are included in this academic packet.

Daily Fluency Practice

Mathematical Fluencies:

In Grade 6, students are expected to know multi-digit division and multi-digit decimal operations by end of year. This is a great time to practice these skills.

Lesson 2

Standard	6.EE.A.3
Learning Target	Students can build and clarify the relationship of multiplication and division by evaluating identities such as $a \div b \cdot b = a$ and $a \cdot b \div b = a$.
Launch	SCAN ME ***Recommended***: Students will *view the "Knowledge on the Go" video for* ***Module 4, Lesson 2***. Scan the "Knowledge on the Go" video along with the instructor. We encourage parents to assist students with accessing and engaging with the "Knowledge on the Go" videos.
Guided Practice	***Recommended:*** *Students will complete the Problem Set* for ***Module 4, Lesson 2*** *from the "Knowledge on the Go" video along with the instructor. These are included in this academic packet.*
Closing	***Recommended***: Recommended: Students will reflect and share their learning on Module 4 Lesson 2.
Extend	SCAN ME ***Recommended:*** Students will complete the "Teacher Assigned" lesson in i-Ready. Visit Clever.com to access i-Ready.
Intervention	***Recommended****:* Students will work on their individual Learning Path (My Path) in i-Ready. Visit Clever.com to access i-Ready.

Click the Knowledge on the Go Lesson Materials link or scan the Knowledge on the Go QR Code in the Materials section. Then scroll down and click on the corresponding Module and Lesson. Problem sets are included in this academic packet.

Daily Fluency Practice

Mathematical Fluencies:

In Grade 6, students are expected to know multi-digit division and multi-digit decimal operations by end of year. This is a great time to practice these skills.

Lesson 3

Standard	6.EE.A.3
Learning Target	Students build and clarify the relationship of multiplication and addition by evaluating identities such as $3 \cdot g = g + g + g$.
Launch	SCAN ME ***Recommended***: Students will *view the "Knowledge on the Go" video for* ***Module 4, Lesson 3***. Scan the "Knowledge on the Go" video along with the instructor. We encourage parents to assist students with accessing and engaging with the "Knowledge on the Go" videos.
Guided Practice	***Recommended:*** *Students will complete the Problem Set* for ***Module 4, Lesson 3*** *from the "Knowledge on the Go" video along with the instructor. These are included in this academic packet.*
Closing	*Recommended: Students will reflect and share their learning on Module 4 Lesson 3.*
Extend	SCAN ME ***Recommended:*** Students will complete the "Teacher Assigned" lesson in i-Ready. Visit Clever.com to access i-Ready.
Intervention	***Recommended****:* Students will work on their individual Learning Path (My Path) in i-Ready. Visit Clever.com to access i-Ready.

Click the Knowledge on the Go Lesson Materials link or scan the Knowledge on the Go QR Code in the Materials section. Then scroll down and click on the corresponding Module and Lesson. Problem sets are included in this academic packet.

Daily Fluency Practice

Mathematical Fluencies:

In Grade 6, students are expected to know multi-digit division and multi-digit decimal operations by end of year. This is a great time to practice these skills.

Lesson 4

Standard	6.EE.A.3
Learning Target	Students build and clarify the relationship of division and subtraction by determining that $12 \div x = 4$ means $12 - x - x - x - x = 0$.
Launch	SCAN ME ***Recommended***: Students will *view the "Knowledge on the Go" video for* ***Module 4, Lesson 4***. Scan the "Knowledge on the Go" video along with the instructor. We encourage parents to assist students with accessing and engaging with the "Knowledge on the Go" videos.
Guided Practice	***Recommended:*** *Students will complete the Problem Set* for ***Module 4, Lesson 4*** *from the "Knowledge on the Go" video along with the instructor. These are included in this academic packet.*
Closing	***Recommended:*** *Recommended: Students will reflect and share their learning on Module 4 Lesson 4.*
Extend	SCAN ME ***Recommended:*** Students will complete the "Teacher Assigned" lesson in i-Ready. Visit Clever.com to access i-Ready.
Intervention	***Recommended****:* Students will work on their individual Learning Path (My Path) in i-Ready. Visit Clever.com to access i-Ready.

Click the Knowledge on the Go Lesson Materials link or scan the Knowledge on the Go QR Code in the Materials section. Then scroll down and click on the corresponding Module and Lesson. Problem sets are included in this academic packet.

Grade 6 Mathematics

WEEKLY DISTANCE LEARNING STUDENT SCHEDULE

4/20/20 to 4/24/20 Week 2 (5 days)

Directions: **Parents:** Assist students with accessing the "Knowledge on the Go" videos, Problem Sets in this packet, and i-Ready through the Clever app. Also, monitor student's progress while working on the videos and/or online lessons.

Students: Click or watch the "Knowledge on the Go" video each day and complete the daily Problem Set. Visit i-ready to continue your learning path and complete Teacher-Assigned lessons.

Target Standard(s) 6.EE.A.1, 6.EE.A.2, 6.EE.A.2.c, 6.EE.A.3, 6.EE.A.4

Module Module 4: Expressions and Equations

Topic Topic B: Special Notations of Operations
Topic C: Replacing Letters and Numbers
Topic D: Expanding, Factoring, and Distributing Expressions

Materials Needed:

- Access to Knowledge on the Go Lesson Videos & Resources including Templates & Homework Helpers which provide guidance with worked examples for each lesson.
- Clever Access for i-Ready (see links and QR codes below)
- Paper, Pencil, Academic Packet including Problem Sets

SCAN ME Knowledge on the Go Videos

SCAN ME clever.com

SCAN ME Additional Resources

	Daily Lesson (50 minutes)	Extension (10-15 minutes)	Intervention (15 minutes)
Day 5	Knowledge on the Go Lesson Materials for Module 4, Lesson 5	i-Ready "Teacher Assigned" Lesson clever.com	i-Ready "My Path" Lesson clever.com
Day 6	Knowledge on the Go Lesson Materials for Module 4, Lesson 6	i-Ready "Teacher Assigned" Lesson	i-Ready "My Path" Lesson
Day 7	Knowledge on the Go Lesson Materials for Module 4, Lesson 7	i-Ready "Teacher Assigned" Lesson	i-Ready "My Path" Lesson
Day 8	Knowledge on the Go Lesson Materials for Module 4, Lesson 8	i-Ready "Teacher Assigned" Lesson	i-Ready "My Path" Lesson
Day 9	Knowledge on the Go Lesson Materials for Module 4, Lesson 9	i-Ready "Teacher Assigned" Lesson	i-Ready "My Path" Lesson

Click the Knowledge on the Go Lesson Materials link or scan the Knowledge on the Go QR Code in the Materials section. Then scroll down and click on the corresponding Module and Lesson. Problem sets are included in this academic packet.

Daily Fluency Practice

Mathematical Fluencies:

In Grade 6, students are expected to know multi-digit division and multi-digit decimal operations by end of year. This is a great time to practice these skills.

Lesson 5

Standard	6.EE.A.1
Learning Target	Students discover that 3 x = $x + x + x$ is not the same thing as x^3, which is $x \cdot x \cdot x$. Students understand that a base number can be represented with a positive whole number, positive fraction, or positive decimal and that for any number a, a^m is defined as the product of m factors of a. The number a is the base, and m is called the exponent or power of a.
Launch	SCAN ME ***Recommended***: Students will *view the "Knowledge on the Go" video for* ***Module 4, Lesson 5***. Scan the "Knowledge on the Go" video along with the instructor. We encourage parents to assist students with accessing and engaging with the "Knowledge on the Go" videos.
Guided Practice	***Recommended:*** *Students will complete the Problem Set* for ***Module 4, Lesson 5*** *from the "Knowledge on the Go" video along with the instructor. These are included in this academic packet.*
Closing	***Recommended:*** Recommended: Students will reflect and share their learning on Module 4 Lesson 5.
Extend	SCAN ME ***Recommended:*** Students will complete the "Teacher Assigned" lesson in i-Ready. Visit Clever.com to access i-Ready.
Intervention	***Recommended****:* Students will work on their individual Learning Path (My Path) in i-Ready. Visit Clever.com to access i-Ready.

Click the Knowledge on the Go Lesson Materials link or scan the Knowledge on the Go QR Code in the Materials section. Then scroll down and click on the corresponding Module and Lesson. Problem sets are included in this academic packet.

Daily Fluency Practice

Mathematical Fluencies:

In Grade 6, students are expected to know multi-digit division and multi-digit decimal operations by end of year. This is a great time to practice these skills.

Lesson 6

Standard	6.EE.A.3, 6.EE.A.2.c
Learning Target	Students evaluate numerical expressions. They recognize that in the absence of parentheses, exponents are evaluated first.
Launch	SCAN ME ***Recommended***: Students will *view the "Knowledge on the Go" video for* ***Module 4, Lesson 6***. Scan the "Knowledge on the Go" video along with the instructor. We encourage parents to assist students with accessing and engaging with the "Knowledge on the Go" videos.
Guided Practice	***Recommended:*** *Students will complete the Problem Set* for ***Module 4, Lesson 6*** *from the "Knowledge on the Go" video along with the instructor. These are included in this academic packet.*
Closing	***Recommended:*** Recommended: Students will reflect and share their learning on Module 4 Lesson 6.
Extend	SCAN ME ***Recommended:*** Students will complete the "Teacher Assigned" lesson in i-Ready. Visit Clever.com to access i-Ready.
Intervention	***Recommended****:* Students will work on their individual Learning Path (My Path) in i-Ready. Visit Clever.com to access i-Ready.

Click the Knowledge on the Go Lesson Materials link or scan the Knowledge on the Go QR Code in the Materials section. Then scroll down and click on the corresponding Module and Lesson. Problem sets are included in this academic packet.

Daily Fluency Practice

Mathematical Fluencies:

In Grade 6, students are expected to know multi-digit division and multi-digit decimal operations by end of year. This is a great time to practice these skills.

Lesson 7

Standard	6.EE.A.2
Learning Target	Students understand that a letter represents one number in an expression. When that number replaces the letter, the expression can be evaluated to one number.
Launch	SCAN ME ***Recommended***: Students will *view the "Knowledge on the Go" video for* ***Module 4, Lesson 7***. Scan the "Knowledge on the Go" video along with the instructor. We encourage parents to assist students with accessing and engaging with the "Knowledge on the Go" videos.
Guided Practice	***Recommended:*** *Students will complete the Problem Set* for ***Module 4, Lesson 7*** *from the "Knowledge on the Go" video along with the instructor. These are included in this academic packet.*
Closing	***Recommended:*** *Recommended: Students will reflect and share their learning on Module 4 Lesson 7.*
Extend	SCAN ME ***Recommended:*** Students will complete the "Teacher Assigned" lesson in i-Ready. Visit Clever.com to access i-Ready.
Intervention	***Recommended****:* Students will work on their individual Learning Path (My Path) in i-Ready. Visit Clever.com to access i-Ready.

Click the Knowledge on the Go Lesson Materials link or scan the Knowledge on the Go QR Code in the Materials section. Then scroll down and click on the corresponding Module and Lesson. Problem sets are included in this academic packet.

Daily Fluency Practice

Mathematical Fluencies:

In Grade 6, students are expected to know multi-digit division and multi-digit decimal operations by end of year. This is a great time to practice these skills.

Lesson 8

Standard	6.EE.A.2, 6.EE.A.4
Learning Target	Students understand that a letter in an expression or an equation can represent a number. When that number is replaced with a letter, an expression or an equation is stated. Students discover the commutative properties of addition and multiplication, the additive identity property of zero, and the multiplicative identity property of one. They determine that $g \div 1 = g$, $g \div g = 1$, and $1 \div g = 1/g$.
Launch	SCAN ME ***Recommended***: Students will *view the "Knowledge on the Go" video for* ***Module 4, Lesson 8***. Scan the "Knowledge on the Go" video along with the instructor. We encourage parents to assist students with accessing and engaging with the "Knowledge on the Go" videos.
Guided Practice	***Recommended:*** *Students will complete the Problem Set* for ***Module 4, Lesson 8*** from the "Knowledge on the Go" video along with the instructor. These are included in this academic packet.
Closing	***Recommended:*** *Students will reflect and share their learning on Module 4 Lesson 8.*
Extend	SCAN ME ***Recommended:*** Students will complete the "Teacher Assigned" lesson in i-Ready. Visit Clever.com to access i-Ready.
Intervention .	***Recommended:*** Students will work on their individual Learning Path (My Path) in i-Ready. Visit Clever.com to access i-Ready.

Click the Knowledge on the Go Lesson Materials link or scan the Knowledge on the Go QR Code in the Materials section. Then scroll down and click on the corresponding Module and Lesson. Problem sets are included in this academic packet.

Daily Fluency Practice

Mathematical Fluencies:

In Grade 6, students are expected to know multi-digit division and multi-digit decimal operations by end of year. This is a great time to practice these skills.

Lesson 9

Standard	6.EE.A.2, 6.EE.A.3, 6.EE.A.3
Learning Target	Students write expressions that record addition and subtraction operations with numbers.
Launch	SCAN ME ***Recommended:*** Students will *view the "Knowledge on the Go" video for* ***Module 4, Lesson 9***. Scan the "Knowledge on the Go" video along with the instructor. We encourage parents to assist students with accessing and engaging with the "Knowledge on the Go" videos.
Guided Practice	***Recommended:*** *Students will complete the Problem Set* for ***Module 4, Lesson 9*** from the "Knowledge on the Go" video along with the instructor. These are included in this academic packet.
Closing	***Recommended:*** *Students will reflect and share their learning on Module 4 Lesson 9.*
Extend	SCAN ME ***Recommended:*** Students will complete the "Teacher Assigned" lesson in i-Ready. Visit Clever.com to access i-Ready.
Intervention	***Recommended:*** Students will work on their individual Learning Path (My Path) in i-Ready. Visit Clever.com to access i-Ready.

Click the Knowledge on the Go Lesson Materials link or scan the Knowledge on the Go QR Code in the Materials section. Then scroll down and click on the corresponding Module and Lesson. Problem sets are included in this academic packet.

Grade 6 Mathematics

WEEKLY DISTANCE LEARNING STUDENT SCHEDULE

4/27/20 to 5/01/20 Week 3 (5 days)

Directions: **Parents:** Assist students with accessing the "Knowledge on the Go" videos, Problem Sets in this packet, and i-Ready through the Clever app. Also, monitor student's progress while working on the videos and/or online lessons.

Students: Click or watch the "Knowledge on the Go" video each day and complete the daily Problem Set. Visit i-ready to continue your learning path and complete Teacher-Assigned lessons.

Target Standard(s) 6.EE.A.2, 6.EE.A.3, 6.EE.A.4

Module Module 4: Expressions and Equations

Topic Topic D: Expanding, Factoring, and Distributing Expressions

Materials Needed:

- Access to Knowledge on the Go Lesson Videos & Resources including Templates & Homework Helpers which provide guidance with worked examples for each lesson.
- Clever Access for i-Ready (see links and QR codes below)
- Paper, Pencil, Academic Packet including Problem Sets

SCAN ME Knowledge on the Go Videos

SCAN ME clever.com

SCAN ME Additional Resources

	Daily Lesson (50 minutes)	Extension (10-15 minutes)	Intervention (15 minutes)
Day 10	Knowledge on the Go Lesson Materials for Module 4, Lesson 10	i-Ready "Teacher Assigned" Lesson clever.com	i-Ready "My Path" Lesson clever.com
Day 11	Knowledge on the Go Lesson Materials for Module 4, Lesson 11	i-Ready "Teacher Assigned" Lesson	i-Ready "My Path" Lesson
Day 12	Knowledge on the Go Lesson Materials for Module 4, Lesson 12	i-Ready "Teacher Assigned" Lesson	i-Ready "My Path" Lesson
Day 13	Knowledge on the Go Lesson Materials for Module 4, Lesson 13	i-Ready "Teacher Assigned" Lesson	i-Ready "My Path" Lesson
Day 14	Knowledge on the Go Lesson Materials for Module 4, Lesson 14	i-Ready "Teacher Assigned" Lesson	i-Ready "My Path" Lesson

Click the Knowledge on the Go Lesson Materials link or scan the Knowledge on the Go QR Code in the Materials section. Then scroll down and click on the corresponding Module and Lesson. Problem sets are included in this academic packet.

Daily Fluency Practice

Mathematical Fluencies:

In Grade 6, students are expected to know multi-digit division and multi-digit decimal operations by end of year. This is a great time to practice these skills.

Lesson 10

Standard	6.EE.A.2, 6.EE.A.4
Learning Target	Students identify parts of an expression using mathematical terms for multiplication. They view one or more parts of an expression as a single entity.
Launch	SCAN ME ***Recommended:*** Students will *view the "Knowledge on the Go" video for* ***Module 4, Lesson 10***. Scan the "Knowledge on the Go" video along with the instructor. We encourage parents to assist students with accessing and engaging with the "Knowledge on the Go" videos.
Guided Practice	***Recommended:*** *Students will complete the Problem Set* for ***Module 4, Lesson 10*** from the "Knowledge on the Go" video along with the instructor. These are included in this academic packet.
Closing	**Recommended:** Students will reflect and share their learning on Module 4 Lesson 10.
Extend	SCAN ME ***Recommended:*** Students will complete the "Teacher Assigned" lesson in i-Ready. Visit Clever.com to access i-Ready.
Intervention	***Recommended:*** Students will work on their individual Learning Path (My Path) in i-Ready. Visit Clever.com to access i-Ready.

Click the Knowledge on the Go Lesson Materials link or scan the Knowledge on the Go QR Code in the Materials section. Then scroll down and click on the corresponding Module and Lesson. Problem sets are included in this academic packet.

Daily Fluency Practice

Mathematical Fluencies:

In Grade 6, students are expected to know multi-digit division and multi-digit decimal operations by end of year. This is a great time to practice these skills.

Lesson 11

Standard	6.EE.A.2, 6.EE.A.3, 6.EE.A.4
Learning Target	Students model and write equivalent expressions using the distributive property. They move from expanded form to factored form of an expression.
Launch	SCAN ME ***Recommended:*** Students will *view the "Knowledge on the Go" video for* ***Module 4, Lesson 11***. Scan the "Knowledge on the Go" video along with the instructor. We encourage parents to assist students with accessing and engaging with the "Knowledge on the Go" videos.
Guided Practice	***Recommended:*** *Students will complete the Problem Set* for ***Module 4, Lesson 11*** from the "Knowledge on the Go" video along with the instructor. These are included in this academic packet.
Closing	**Recommended:** Students will reflect and share their learning on Module 4 Lesson 11.
Extend	SCAN ME ***Recommended:*** Students will complete the "Teacher Assigned" lesson in i-Ready. Visit Clever.com to access i-Ready.
Intervention	***Recommended:*** Students will work on their individual Learning Path (My Path) in i-Ready. Visit Clever.com to access i-Ready.

Click the Knowledge on the Go Lesson Materials link or scan the Knowledge on the Go QR Code in the Materials section. Then scroll down and click on the corresponding Module and Lesson. Problem sets are included in this academic packet.

Daily Fluency Practice

Mathematical Fluencies:

In Grade 6, students are expected to know multi-digit division and multi-digit decimal operations by end of year. This is a great time to practice these skills.

Lesson 12

Standard	6.EE.A.2, 6.EE.A.3, 6.EE.A.4
Learning Target	Students model and write equivalent expressions using the distributive property. They move from factored form to expanded form of an expression.
Launch	SCAN ME ***Recommended:*** Students will *view the "Knowledge on the Go" video for* ***Module 4, Lesson 12***. Scan the "Knowledge on the Go" video along with the instructor. We encourage parents to assist students with accessing and engaging with the "Knowledge on the Go" videos.
Guided Practice	***Recommended:*** *Students will complete the Problem Set* for ***Module 4, Lesson 12*** from the "Knowledge on the Go" video along with the instructor. These are included in this academic packet.
Closing	***Recommended:*** *Students will reflect and share their learning on Module 4 Lesson 12.*
Extend	SCAN ME ***Recommended:*** Students will complete the "Teacher Assigned" lesson in i-Ready. Visit Clever.com to access i-Ready.
Intervention *	***Recommended:*** Students will work on their individual Learning Path (My Path) in i-Ready. Visit Clever.com to access i-Ready.

Click the Knowledge on the Go Lesson Materials link or scan the Knowledge on the Go QR Code in the Materials section. Then scroll down and click on the corresponding Module and Lesson. Problem sets are included in this academic packet.

Daily Fluency Practice

Mathematical Fluencies:

In Grade 6, students are expected to know multi-digit division and multi-digit decimal operations by end of year. This is a great time to practice these skills.

Lesson 13

Standard	6.EE.A.2, 6.EE.A.4
Learning Target	Students write numerical expressions in two forms, " dividend ÷ divisor " and " dividend/divisor ," and note the relationship between the two.
Launch	SCAN ME ***Recommended:*** Students will *view the "Knowledge on the Go" video for* ***Module 4, Lesson 13***. Scan the "Knowledge on the Go" video along with the instructor. We encourage parents to assist students with accessing and engaging with the "Knowledge on the Go" videos.
Guided Practice	***Recommended:*** *Students will complete the Problem Set* for ***Module 4, Lesson 13*** from the "Knowledge on the Go" video along with the instructor. These are included in this academic packet.
Closing	***Recommended:*** *Students will reflect and share their learning on Module 4 Lesson 13.*
Extend	SCAN ME ***Recommended:*** Students will complete the "Teacher Assigned" lesson in i-Ready. Visit Clever.com to access i-Ready.
Intervention	***Recommended:*** Students will work on their individual Learning Path (My Path) in i-Ready. Visit Clever.com to access i-Ready.

Click the Knowledge on the Go Lesson Materials link or scan the Knowledge on the Go QR Code in the Materials section. Then scroll down and click on the corresponding Module and Lesson. Problem sets are included in this academic packet.

Daily Fluency Practice

Mathematical Fluencies:

In Grade 6, students are expected to know multi-digit division and multi-digit decimal operations by end of year. This is a great time to practice these skills.

Lesson 14

Standard	6.EE.A.2
Learning Target	Students write numerical expressions in two forms, " dividend ÷ divisor " and " dividend/divisor ," and note the relationship between the two.
Launch	SCAN ME ***Recommended:*** Students will *view the "Knowledge on the Go" video for* ***Module 4, Lesson 14***. Scan the "Knowledge on the Go" video along with the instructor. We encourage parents to assist students with accessing and engaging with the "Knowledge on the Go" videos.
Guided Practice	***Recommended:*** *Students will complete the Problem Set* for ***Module 4, Lesson 14*** from the "Knowledge on the Go" video along with the instructor. These are included in this academic packet.
Closing	***Recommended:*** *Students will reflect and share their learning on Module 4 Lesson 14.*
Extend	SCAN ME ***Recommended:*** Students will complete the "Teacher Assigned" lesson in i-Ready. Visit Clever.com to access i-Ready.
Intervention	***Recommended:*** Students will work on their individual Learning Path (My Path) in i-Ready. Visit Clever.com to access i-Ready.

Click the Knowledge on the Go Lesson Materials link or scan the Knowledge on the Go QR Code in the Materials section. Then scroll down and click on the corresponding Module and Lesson. Problem sets are included in this academic packet.

Grade 6 Mathematics

WEEKLY DISTANCE LEARNING STUDENT SCHEDULE

5/04/20 to 5/08/20 Week 4 (5 days)

Directions: **Parents:** Assist students with accessing the "Knowledge on the Go" videos, Problem Sets in this packet, and i-Ready through the Clever app. Also, monitor student's progress while working on the videos and/or online lessons.

Students: Click or watch the "Knowledge on the Go" video each day and complete the daily Problem Set. Visit i-ready to continue your learning path and complete Teacher-Assigned lessons.

Target Standard(s) 6.EE.A.1, 6.EE.A.2, 6.EE.B.6

Module Module 4: Expressions and Equations

Topic Topic E: Expressing Operations in Algebraic Form
Topic F: Writing and Evaluating Expressions and Formulas

Materials Needed:

- Access to Knowledge on the Go Lesson Videos & Resources including Templates & Homework Helpers which provide guidance with worked examples for each lesson.
- Clever Access for i-Ready (see links and QR codes below)
- Paper, Pencil, Academic Packet including Problem Sets

SCAN ME Knowledge on the Go Videos

SCAN ME clever.com

SCAN ME Additional Resources

	Daily Lesson (50 minutes)	Extension (10-15 minutes)	Intervention (15 minutes)
Day 15	Knowledge on the Go Lesson Materials for Module 4, Lesson 15	i-Ready "Teacher Assigned" Lesson clever.com	i-Ready "My Path" Lesson clever.com
Day 16	Knowledge on the Go Lesson Materials for Module 4, Lesson 16	i-Ready "Teacher Assigned" Lesson	i-Ready "My Path" Lesson
Day 17	Knowledge on the Go Lesson Materials for Module 4, Lesson 17	i-Ready "Teacher Assigned" Lesson	i-Ready "My Path" Lesson
Day 18	Knowledge on the Go Lesson Materials for Module 4, Lesson 18	i-Ready "Teacher Assigned" Lesson	i-Ready "My Path" Lesson
Day 19	Knowledge on the Go Lesson Materials for Module 4, Lesson 19	i-Ready "Teacher Assigned" Lesson	i-Ready "My Path" Lesson

Click the Knowledge on the Go Lesson Materials link or scan the Knowledge on the Go QR Code in the Materials section. Then scroll down and click on the corresponding Module and Lesson. Problem sets are included in this academic packet.

Daily Fluency Practice

Mathematical Fluencies:

In Grade 6, students are expected to know multi-digit division and multi-digit decimal operations by end of year. This is a great time to practice these skills.

Lesson 15

Standard	6.EE.A.2
Learning Target	Students read expressions in which letters stand for numbers. They assign operation terms to operations when reading. Students identify parts of an algebraic expression using mathematical terms for all operations.
Launch	SCAN ME ***Recommended:*** Students will *view the "Knowledge on the Go" video for* ***Module 4, Lesson 15***. Scan the "Knowledge on the Go" video along with the instructor. We encourage parents to assist students with accessing and engaging with the "Knowledge on the Go" videos.
Guided Practice	***Recommended:*** *Students will complete the Problem Set* for ***Module 4, Lesson 15*** from the "Knowledge on the Go" video along with the instructor. These are included in this academic packet.
Closing	**Recommended:** Students will reflect and share their learning on Module 4 Lesson 15.
Extend	SCAN ME ***Recommended:*** Students will complete the "Teacher Assigned" lesson in i-Ready. Visit Clever.com to access i-Ready.
Intervention	***Recommended:*** Students will work on their individual Learning Path (My Path) in i-Ready. Visit Clever.com to access i-Ready.

Click the Knowledge on the Go Lesson Materials link or scan the Knowledge on the Go QR Code in the Materials section. Then scroll down and click on the corresponding Module and Lesson. Problem sets are included in this academic packet.

Daily Fluency Practice

Mathematical Fluencies:

In Grade 6, students are expected to know multi-digit division and multi-digit decimal operations by end of year. This is a great time to practice these skills.

Lesson 16

Standard	6.EE.A.1, 6.EE.A.2
Learning Target	Students write algebraic expressions that record all operations with numbers and letters standing for the numbers.
Launch	SCAN ME ***Recommended:*** Students will *view the "Knowledge on the Go" video for* ***Module 4, Lesson 16***. Scan the "Knowledge on the Go" video along with the instructor. We encourage parents to assist students with accessing and engaging with the "Knowledge on the Go" videos.
Guided Practice	***Recommended:*** *Students will complete the Problem Set* for ***Module 4, Lesson 16*** from the "Knowledge on the Go" video along with the instructor. These are included in this academic packet.
Closing	**Recommended:** Students will reflect and share their learning on Module 4 Lesson 16.
Extend	SCAN ME ***Recommended:*** Students will complete the "Teacher Assigned" lesson in i-Ready. Visit Clever.com to access i-Ready.
Intervention	***Recommended:*** Students will work on their individual Learning Path (My Path) in i-Ready. Visit Clever.com to access i-Ready.

Click the Knowledge on the Go Lesson Materials link or scan the Knowledge on the Go QR Code in the Materials section. Then scroll down and click on the corresponding Module and Lesson. Problem sets are included in this academic packet.

Daily Fluency Practice

Mathematical Fluencies:

In Grade 6, students are expected to know multi-digit division and multi-digit decimal operations by end of year. This is a great time to practice these skills.

Lesson 17

Standard	6.EE.A.2
Learning Target	Students write algebraic expressions that record all operations with numbers and/or letters standing for the numbers.
Launch	SCAN ME ***Recommended:*** Students will *view the "Knowledge on the Go" video for* ***Module 4, Lesson 17***. Scan the "Knowledge on the Go" video along with the instructor. We encourage parents to assist students with accessing and engaging with the "Knowledge on the Go" videos.
Guided Practice	***Recommended:*** *Students will complete the Problem Set* for ***Module 4, Lesson 17*** from the "Knowledge on the Go" video along with the instructor. These are included in this academic packet.
Closing	***Recommended:*** *Students will reflect and share their learning on Module 4 Lesson 17.*
Extend	SCAN ME ***Recommended:*** Students will complete the "Teacher Assigned" lesson in i-Ready. Visit Clever.com to access i-Ready.
Intervention	***Recommended:*** Students will work on their individual Learning Path (My Path) in i-Ready. Visit Clever.com to access i-Ready.

Click the Knowledge on the Go Lesson Materials link or scan the Knowledge on the Go QR Code in the Materials section. Then scroll down and click on the corresponding Module and Lesson. Problem sets are included in this academic packet.

Daily Fluency Practice

Mathematical Fluencies:

In Grade 6, students are expected to know multi-digit division and multi-digit decimal operations by end of year. This is a great time to practice these skills.

Lesson 18

Standard	6.EE.A.2, 6.EE.B.6
Learning Target	Students use variables to write expressions involving addition and subtraction from real-world problems. Students evaluate these expressions when given the value of the variable.
Launch	SCAN ME ***Recommended:*** Students will *view the "Knowledge on the Go" video for* ***Module 4, Lesson 18***. Scan the "Knowledge on the Go" video along with the instructor. We encourage parents to assist students with accessing and engaging with the "Knowledge on the Go" videos.
Guided Practice	***Recommended:*** *Students will complete the Problem Set* for ***Module 4, Lesson 18*** from the "Knowledge on the Go" video along with the instructor. These are included in this academic packet.
Closing	***Recommended:*** *Students will reflect and share their learning on Module 4 Lesson 18.*
Extend	SCAN ME ***Recommended:*** Students will complete the "Teacher Assigned" lesson in i-Ready. Visit Clever.com to access i-Ready.
Intervention .	***Recommended:*** Students will work on their individual Learning Path (My Path) in i-Ready. Visit Clever.com to access i-Ready.

Click the Knowledge on the Go Lesson Materials link or scan the Knowledge on the Go QR Code in the Materials section. Then scroll down and click on the corresponding Module and Lesson. Problem sets are included in this academic packet.

Daily Fluency Practice

Mathematical Fluencies:

In Grade 6, students are expected to know multi-digit division and multi-digit decimal operations by end of year. This is a great time to practice these skills.

Lesson 19

Standard	6.EE.A.2
Learning Target	Students develop expressions involving addition and subtraction from real-world problems. Students evaluate these expressions for given values.
Launch	SCAN ME ***Recommended:*** Students will *view the "Knowledge on the Go" video for* ***Module 4, Lesson 19***. Scan the "Knowledge on the Go" video along with the instructor. We encourage parents to assist students with accessing and engaging with the "Knowledge on the Go" videos.
Guided Practice	***Recommended:*** *Students will complete the Problem Set* for ***Module 4, Lesson 19*** from the "Knowledge on the Go" video along with the instructor. These are included in this academic packet.
Closing	***Recommended:*** *Students will reflect and share their learning on Module 4 Lesson 19.*
Extend	SCAN ME ***Recommended:*** Students will complete the "Teacher Assigned" lesson in i-Ready. Visit Clever.com to access i-Ready.
Intervention	***Recommended:*** Students will work on their individual Learning Path (My Path) in i-Ready. Visit Clever.com to access i-Ready.

Click the Knowledge on the Go Lesson Materials link or scan the Knowledge on the Go QR Code in the Materials section. Then scroll down and click on the corresponding Module and Lesson. Problem sets are included in this academic packet.

Grade 6 Mathematics

WEEKLY DISTANCE LEARNING STUDENT SCHEDULE

5/11/20 to 5/15/20 Week 5 (5 days)

Directions: **Parents:** Assist students with accessing the "Knowledge on the Go" videos, Problem Sets in this packet, and i-Ready through the Clever app. Also, monitor student's progress while working on the videos and/or online lessons.

Students: Click or watch the "Knowledge on the Go" video each day and complete the daily Problem Set. Visit i-ready to continue your learning path and complete Teacher-Assigned lessons.

Target Standard(s) 6.EE.A.2, 6.EE.B.5, 6.EE.B.6

Module Module 4: Expressions and Equations

Topic Topic F: Writing and Evaluating Expressions and Formulas
Topic G: Solving Equations

Materials Needed:

- Access to Knowledge on the Go Lesson Videos & Resources including Templates & Homework Helpers which provide guidance with worked examples for each lesson.
- Clever Access for i-Ready (see links and QR codes below)
- Paper, Pencil, Academic Packet including Problem Sets

SCAN ME Knowledge on the Go Videos

SCAN ME clever.com

SCAN ME Additional Resources

	Daily Lesson (50 minutes)	Extension (10-15 minutes)	Intervention (15 minutes)
Day 20	Knowledge on the Go Lesson Materials for Module 4, Lesson 20	i-Ready "Teacher Assigned" Lesson clever.com	i-Ready "My Path" Lesson clever.com
Day 21	Knowledge on the Go Lesson Materials for Module 4, Lesson 21	i-Ready "Teacher Assigned" Lesson	i-Ready "My Path" Lesson
Day 22	Knowledge on the Go Lesson Materials for Module 4, Lesson 22	i-Ready "Teacher Assigned" Lesson	i-Ready "My Path" Lesson
Day 23	Knowledge on the Go Lesson Materials for Module 4, Lesson 23	i-Ready "Teacher Assigned" Lesson	i-Ready "My Path" Lesson
Day 24	Knowledge on the Go Lesson Materials for Module 4, Lesson 24	i-Ready "Teacher Assigned" Lesson	i-Ready "My Path" Lesson

Click the Knowledge on the Go Lesson Materials link or scan the Knowledge on the Go QR Code in the Materials section. Then scroll down and click on the corresponding Module and Lesson. Problem sets are included in this academic packet.

Daily Fluency Practice

Mathematical Fluencies:

In Grade 6, students are expected to know multi-digit division and multi-digit decimal operations by end of year. This is a great time to practice these skills.

Lesson 20

Standard	6.EE.A.2, 6.EE.B.6
Learning Target	Students develop expressions involving multiplication and division from real-world problems. Students evaluate these expressions for given values.
Launch	SCAN ME ***Recommended:*** Students will *view the "Knowledge on the Go" video for* ***Module 4, Lesson 20****.* Scan the "Knowledge on the Go" video along with the instructor. We encourage parents to assist students with accessing and engaging with the "Knowledge on the Go" videos.
Guided Practice	***Recommended:*** *Students will complete the Problem Set* for ***Module 4, Lesson 20*** from the "Knowledge on the Go" video along with the instructor. These are included in this academic packet.
Closing	**Recommended:** Students will reflect and share their learning on Module 4 Lesson 20.
Extend	SCAN ME ***Recommended:*** Students will complete the "Teacher Assigned" lesson in i-Ready. Visit Clever.com to access i-Ready.
Intervention	***Recommended:*** Students will work on their individual Learning Path (My Path) in i-Ready. Visit Clever.com to access i-Ready.

Click the Knowledge on the Go Lesson Materials link or scan the Knowledge on the Go QR Code in the Materials section. Then scroll down and click on the corresponding Module and Lesson. Problem sets are included in this academic packet.

Daily Fluency Practice

Mathematical Fluencies:

In Grade 6, students are expected to know multi-digit division and multi-digit decimal operations by end of year. This is a great time to practice these skills.

Lesson 21

Standard	6.EE.A.2, 6.EE.B.6
Learning Target	Students develop formulas involving multiplication and addition from real-world problems. Students evaluate these formulas for given values.
Launch	SCAN ME ***Recommended:*** Students will *view the "Knowledge on the Go" video for* ***Module 4, Lesson 21***. Scan the "Knowledge on the Go" video along with the instructor. We encourage parents to assist students with accessing and engaging with the "Knowledge on the Go" videos.
Guided Practice	***Recommended:*** *Students will complete the Problem Set* for ***Module 4, Lesson 21*** from the "Knowledge on the Go" video along with the instructor. These are included in this academic packet.
Closing	**Recommended:** Students will reflect and share their learning on Module 4 Lesson 21.
Extend	SCAN ME ***Recommended:*** Students will complete the "Teacher Assigned" lesson in i-Ready. Visit Clever.com to access i-Ready.
Intervention	***Recommended:*** Students will work on their individual Learning Path (My Path) in i-Ready. Visit Clever.com to access i-Ready.

Click the Knowledge on the Go Lesson Materials link or scan the Knowledge on the Go QR Code in the Materials section. Then scroll down and click on the corresponding Module and Lesson. Problem sets are included in this academic packet.

Daily Fluency Practice

Mathematical Fluencies:

In Grade 6, students are expected to know multi-digit division and multi-digit decimal operations by end of year. This is a great time to practice these skills.

Lesson 22

Standard	6.EE.A.2, 6.EE.B.6
Learning Target	Students evaluate and write formulas involving exponents for given values in real-world problems.
Launch	SCAN ME ***Recommended:*** Students will *view the "Knowledge on the Go" video for* ***Module 4, Lesson 22***. Scan the "Knowledge on the Go" video along with the instructor. We encourage parents to assist students with accessing and engaging with the "Knowledge on the Go" videos.
Guided Practice	***Recommended:*** *Students will complete the Problem Set* for ***Module 4, Lesson 22*** from the "Knowledge on the Go" video along with the instructor. These are included in this academic packet.
Closing	***Recommended:*** *Students will reflect and share their learning on Module 4 Lesson 22.*
Extend	SCAN ME ***Recommended:*** Students will complete the "Teacher Assigned" lesson in i-Ready. Visit Clever.com to access i-Ready.
Intervention	***Recommended:*** Students will work on their individual Learning Path (My Path) in i-Ready. Visit Clever.com to access i-Ready.

Click the Knowledge on the Go Lesson Materials link or scan the Knowledge on the Go QR Code in the Materials section. Then scroll down and click on the corresponding Module and Lesson. Problem sets are included in this academic packet.

Daily Fluency Practice

Mathematical Fluencies:

In Grade 6, students are expected to know multi-digit division and multi-digit decimal operations by end of year. This is a great time to practice these skills.

Lesson 23

Standard	6.EE.B.5, 6.EE.B.6
Learning Target	Students explain what the equality and inequality symbols including = , < , > , ≤ , and ≥ represent. They determine if a number sentence is true or false based on the given symbol.
Launch	SCAN ME ***Recommended:*** Students will *view the "Knowledge on the Go" video for* ***Module 4, Lesson 23***. Scan the "Knowledge on the Go" video along with the instructor. We encourage parents to assist students with accessing and engaging with the "Knowledge on the Go" videos.
Guided Practice	***Recommended:*** *Students will complete the Problem Set* for ***Module 4, Lesson 23*** from the "Knowledge on the Go" video along with the instructor. These are included in this academic packet.
Closing	***Recommended:*** *Students will reflect and share their learning on Module 4 Lesson 23.*
Extend	SCAN ME ***Recommended:*** Students will complete the "Teacher Assigned" lesson in i-Ready. Visit Clever.com to access i-Ready.
Intervention	***Recommended:*** Students will work on their individual Learning Path (My Path) in i-Ready. Visit Clever.com to access i-Ready.

Click the Knowledge on the Go Lesson Materials link or scan the Knowledge on the Go QR Code in the Materials section. Then scroll down and click on the corresponding Module and Lesson. Problem sets are included in this academic packet.

Daily Fluency Practice

Mathematical Fluencies:

In Grade 6, students are expected to know multi-digit division and multi-digit decimal operations by end of year. This is a great time to practice these skills.

Lesson 24

Standard	6.EE.B.5, 6.EE.B.6
Learning Target	Students identify values for the variables in equations and inequalities that result in true number sentences. Students identify values for the variables in equations and inequalities that result in false number sentences.
Launch	SCAN ME ***Recommended:*** Students will *view the "Knowledge on the Go" video for* ***Module 4, Lesson 24***. Scan the "Knowledge on the Go" video along with the instructor. We encourage parents to assist students with accessing and engaging with the "Knowledge on the Go" videos.
Guided Practice	***Recommended:*** *Students will complete the Problem Set* for ***Module 4, Lesson 24*** from the "Knowledge on the Go" video along with the instructor. These are included in this academic packet.
Closing	***Recommended:*** *Students will reflect and share their learning on Module 4 Lesson 24.*
Extend	SCAN ME ***Recommended:*** Students will complete the "Teacher Assigned" lesson in i-Ready. Visit Clever.com to access i-Ready.
Intervention	***Recommended:*** Students will work on their individual Learning Path (My Path) in i-Ready. Visit Clever.com to access i-Ready.

Click the Knowledge on the Go Lesson Materials link or scan the Knowledge on the Go QR Code in the Materials section. Then scroll down and click on the corresponding Module and Lesson. Problem sets are included in this academic packet.

Grade 6 Mathematics

WEEKLY DISTANCE LEARNING STUDENT SCHEDULE

5/18/20 to 5/22/20 Week 6 (5 days)

Directions: **Parents:** Assist students with accessing the "Knowledge on the Go" videos, Problem Sets in this packet, and i-Ready through the Clever app. Also, monitor student's progress while working on the videos and/or online lessons.

Students: Click or watch the "Knowledge on the Go" video each day and complete the daily Problem Set. Visit i-ready to continue your learning path and complete Teacher-Assigned lessons.

Target Standard(s) 6.EE.B.5, 6.EE.B.6, 6.EE.B.7

Module Module 4: Expressions and Equations

Topic Topic G: Solving Equations

Materials Needed:

- Access to Knowledge on the Go Lesson Videos & Resources including Templates & Homework Helpers which provide guidance with worked examples for each lesson.
- Clever Access for i-Ready (see links and QR codes below)
- Paper, Pencil, Academic Packet including Problem Sets

SCAN ME Knowledge on the Go Videos

SCAN ME clever.com

SCAN ME Additional Resources

	Daily Lesson (50 minutes)	Extension (10-15 minutes)	Intervention (15 minutes)
Day 25	Knowledge on the Go Lesson Materials for Module 4, Lesson 25	i-Ready "Teacher Assigned" Lesson clever.com	i-Ready "My Path" Lesson clever.com
Day 26	Knowledge on the Go Lesson Materials for Module 4, Lesson 26	i-Ready "Teacher Assigned" Lesson	i-Ready "My Path" Lesson
Day 27	Knowledge on the Go Lesson Materials for Module 4, Lesson 27	i-Ready "Teacher Assigned" Lesson	i-Ready "My Path" Lesson
Day 28	Knowledge on the Go Lesson Materials for Module 4, Lesson 28	i-Ready "Teacher Assigned" Lesson	i-Ready "My Path" Lesson
Day 29	Knowledge on the Go Lesson Materials for Module 4, Lesson 29	i-Ready "Teacher Assigned" Lesson	i-Ready "My Path" Lesson

Click the Knowledge on the Go Lesson Materials link or scan the Knowledge on the Go QR Code in the Materials section. Then scroll down and click on the corresponding Module and Lesson. Problem sets are included in this academic packet.

Daily Fluency Practice

Mathematical Fluencies:

In Grade 6, students are expected to know multi-digit division and multi-digit decimal operations by end of year. This is a great time to practice these skills.

Lesson 25

Standard	6.EE.B.5, 6.EE.B.6
Learning Target	Students learn the definition of solution in the context of placing a value into a variable to see if that value makes the equation true.
Launch	SCAN ME ***Recommended:*** Students will *view the "Knowledge on the Go" video for* ***Module 4, Lesson 25***. Scan the "Knowledge on the Go" video along with the instructor. We encourage parents to assist students with accessing and engaging with the "Knowledge on the Go" videos.
Guided Practice	***Recommended:*** *Students will complete the Problem Set* for ***Module 4, Lesson 25*** from the "Knowledge on the Go" video along with the instructor. These are included in this academic packet. Set
Closing	**Recommended:** Students will reflect and share their learning on Module 4 Lesson 25.
Extend	SCAN ME ***Recommended:*** Students will complete the "Teacher Assigned" lesson in i-Ready. Visit Clever.com to access i-Ready.
Intervention	***Recommended:*** Students will work on their individual Learning Path (My Path) in i-Ready. Visit Clever.com to access i-Ready.

Click the Knowledge on the Go Lesson Materials link or scan the Knowledge on the Go QR Code in the Materials section. Then scroll down and click on the corresponding Module and Lesson. Problem sets are included in this academic packet.

Daily Fluency Practice

Mathematical Fluencies:

In Grade 6, students are expected to know multi-digit division and multi-digit decimal operations by end of year. This is a great time to practice these skills.

Lesson 26

Standard	6.EE.B.5, 6.EE.B.6, 6.EE.B.7
Learning Target	Students solve one-step equations by relating an equation to a diagram. Students check to determine if their solutions make the equations true.
Launch	SCAN ME ***Recommended:*** Students will *view the "Knowledge on the Go" video for* ***Module 4, Lesson 26***. Scan the "Knowledge on the Go" video along with the instructor. We encourage parents to assist students with accessing and engaging with the "Knowledge on the Go" videos.
Guided Practice	***Recommended:*** *Students will complete the Problem Set* for ***Module 4, Lesson 26*** from the "Knowledge on the Go" video along with the instructor. These are included in this academic packet.
Closing	**Recommended:** Students will reflect and share their learning on Module 4 Lesson 26.
Extend	SCAN ME ***Recommended:*** Students will complete the "Teacher Assigned" lesson in i-Ready. Visit Clever.com to access i-Ready.
Intervention	***Recommended:*** Students will work on their individual Learning Path (My Path) in i-Ready. Visit Clever.com to access i-Ready.

Click the Knowledge on the Go Lesson Materials link or scan the Knowledge on the Go QR Code in the Materials section. Then scroll down and click on the corresponding Module and Lesson. Problem sets are included in this academic packet.

Daily Fluency Practice

Mathematical Fluencies:

In Grade 6, students are expected to know multi-digit division and multi-digit decimal operations by end of year. This is a great time to practice these skills.

Lesson 27

Standard	6.EE.B.5, 6.EE.B.6, 6.EE.B.7
Learning Target	Students solve one-step equations by relating an equation to a diagram. Students check to determine if their solutions make the equations true.
Launch	SCAN ME ***Recommended:*** Students will *view the "Knowledge on the Go" video for* ***Module 4, Lesson 27***. Scan the "Knowledge on the Go" video along with the instructor. We encourage parents to assist students with accessing and engaging with the "Knowledge on the Go" videos.
Guided Practice	***Recommended:*** *Students will complete the Problem Set* for ***Module 4, Lesson 27*** from the "Knowledge on the Go" video along with the instructor. These are included in this academic packet.
Closing	***Recommended:*** *Students will reflect and share their learning on Module 4 Lesson 27.*
Extend	SCAN ME ***Recommended:*** Students will complete the "Teacher Assigned" lesson in i-Ready. Visit Clever.com to access i-Ready.
Intervention	***Recommended:*** Students will work on their individual Learning Path (My Path) in i-Ready. Visit Clever.com to access i-Ready.

Click the Knowledge on the Go Lesson Materials link or scan the Knowledge on the Go QR Code in the Materials section. Then scroll down and click on the corresponding Module and Lesson. Problem sets are included in this academic packet.

Daily Fluency Practice

Mathematical Fluencies:

In Grade 6, students are expected to know multi-digit division and multi-digit decimal operations by end of year. This is a great time to practice these skills.

Lesson 28

Standard	6.EE.B.5, 6.EE.B.6, 6.EE.B.7
Learning Target	Students calculate the solutions of two-step equations by using their knowledge of order of operations and the properties of equality for addition, subtraction, multiplication, and division. Students employ tape diagrams to determine their answers. Students check to determine if their solutions make the equations true.
Launch	SCAN ME ***Recommended:*** Students will *view the "Knowledge on the Go" video for* ***Module 4, Lesson 28***. Scan the "Knowledge on the Go" video along with the instructor. We encourage parents to assist students with accessing and engaging with the "Knowledge on the Go" videos.
Guided Practice	***Recommended:*** *Students will complete the Problem Set* for ***Module 4, Lesson 28*** from the "Knowledge on the Go" video along with the instructor. These are included in this academic packet.
Closing	***Recommended:*** *Students will reflect and share their learning on Module 4 Lesson 28.*
Extend	SCAN ME ***Recommended:*** Students will complete the "Teacher Assigned" lesson in i-Ready. Visit Clever.com to access i-Ready.
Intervention	***Recommended:*** Students will work on their individual Learning Path (My Path) in i-Ready. Visit Clever.com to access i-Ready.

Click the Knowledge on the Go Lesson Materials link or scan the Knowledge on the Go QR Code in the Materials section. Then scroll down and click on the corresponding Module and Lesson. Problem sets are included in this academic packet.

Daily Fluency Practice

Mathematical Fluencies:

In Grade 6, students are expected to know multi-digit division and multi-digit decimal operations by end of year. This is a great time to practice these skills.

Lesson 29

Standard	6.EE.B.5, 6.EE.B.6, 6.EE.B.7
Learning Target	Students use their knowledge of simplifying expressions, order of operations, and properties of equality to calculate the solution of multi-step equations. Students use tables to determine their answers. Students check to determine if their solutions make the equations true.
Launch	SCAN ME ***Recommended:*** Students will *view the "Knowledge on the Go" video for* ***Module 4, Lesson 29***. Scan the "Knowledge on the Go" video along with the instructor. We encourage parents to assist students with accessing and engaging with the "Knowledge on the Go" videos.
Guided Practice	***Recommended:*** *Students will complete the Problem Set* for ***Module 4, Lesson 29*** from the "Knowledge on the Go" video along with the instructor. These are included in this academic packet.
Closing	***Recommended:*** *Students will reflect and share their learning on Module 4 Lesson 29.*
Extend	SCAN ME ***Recommended:*** Students will complete the "Teacher Assigned" lesson in i-Ready. Visit Clever.com to access i-Ready.
Intervention	***Recommended:*** Students will work on their individual Learning Path (My Path) in i-Ready. Visit Clever.com to access i-Ready.

Click the Knowledge on the Go Lesson Materials link or scan the Knowledge on the Go QR Code in the Materials section. Then scroll down and click on the corresponding Module and Lesson. Problem sets are included in this academic packet.

Grade 6 Mathematics

WEEKLY DISTANCE LEARNING STUDENT SCHEDULE

5/26/20 to 5/29/20 Week 7 (5 days)

Directions: **Parents:** Assist students with accessing the "Knowledge on the Go" videos, Problem Sets in this packet, and i-Ready through the Clever app. Also, monitor student's progress while working on the videos and/or online lessons.

Students: Click or watch the "Knowledge on the Go" video each day and complete the daily Problem Set. Visit i-ready to continue your learning path and complete Teacher-Assigned lessons.

Target Standard(s) 6.EE.B.5, 6.EE.B.6, 6.EE.B.7, 6.EE.B.8, 6.EE.C.9

Module Module 4: Expressions and Equations

Topic Topic H: Applications of Equations

Materials Needed:

- Access to Knowledge on the Go Lesson Videos & Resources including Templates & Homework Helpers which provide guidance with worked examples for each lesson.
- Clever Access for i-Ready (see links and QR codes below)
- Paper, Pencil, Academic Packet including Problem Sets

SCAN ME Knowledge on the Go Videos

SCAN ME clever.com

SCAN ME Additional Resources

	Daily Lesson (50 minutes)	Extension (10-15 minutes)	Intervention (15 minutes)
Day 30	Knowledge on the Go Lesson Materials for Module 4, Lesson 30	i-Ready "Teacher Assigned" Lesson	i-Ready "My Path" Lesson
Day 31	Knowledge on the Go Lesson Materials for Module 4, Lesson 31	i-Ready "Teacher Assigned" Lesson	i-Ready "My Path" Lesson
Day 32	Knowledge on the Go Lesson Materials for Module 4, Lesson 32	i-Ready "Teacher Assigned" Lesson	i-Ready "My Path" Lesson
Day 33	Knowledge on the Go Lesson Materials for Module 4, Lesson 33	i-Ready "Teacher Assigned" Lesson	i-Ready "My Path" Lesson

Click the Knowledge on the Go Lesson Materials link or scan the Knowledge on the Go QR Code in the Materials section. Then scroll down and click on the corresponding Module and Lesson. Problem sets are included in this academic packet.

Daily Fluency Practice

Mathematical Fluencies:

In Grade 6, students are expected to know multi-digit division and multi-digit decimal operations by end of year. This is a great time to practice these skills.

Lesson 30

Standard	6.EE.B.5, 6.EE.B.6, 6.EE.B.7
Learning Target	Students calculate missing angle measures by writing and solving equations.
Launch	SCAN ME ***Recommended:*** Students will *view the "Knowledge on the Go" video for* ***Module 4, Lesson 30***. Scan the "Knowledge on the Go" video along with the instructor. We encourage parents to assist students with accessing and engaging with the "Knowledge on the Go" videos.
Guided Practice	***Recommended:*** *Students will complete the Problem Set* for ***Module 4, Lesson 30*** from the "Knowledge on the Go" video along with the instructor. These are included in this academic packet.
Closing	**Recommended:** Students will reflect and share their learning on Module 4 Lesson 30.
Extend	SCAN ME ***Recommended:*** Students will complete the "Teacher Assigned" lesson in i-Ready. Visit Clever.com to access i-Ready.
Intervention	***Recommended:*** Students will work on their individual Learning Path (My Path) in i-Ready. Visit Clever.com to access i-Ready.

Click the Knowledge on the Go Lesson Materials link or scan the Knowledge on the Go QR Code in the Materials section. Then scroll down and click on the corresponding Module and Lesson. Problem sets are included in this academic packet.

Daily Fluency Practice

Mathematical Fluencies:

In Grade 6, students are expected to know multi-digit division and multi-digit decimal operations by end of year. This is a great time to practice these skills.

Lesson 31

Standard	6.EE.B.5, 6.EE.B.6, 6.EE.B.7, 6.EE.C.9
Learning Target	Students analyze an equation in two variables to choose an independent variable and dependent variable. Students determine whether or not the equation is solved for the second variable in terms of the first variable or vice versa. They then use this information to determine which variable is the independent variable and which is the dependent variable. Students create a table by placing the independent variable in the first row or column and the dependent variable in the second row or column. They compute entries in the table by choosing arbitrary values for the independent variable (no constraints) and then determine what the dependent variable must be.
Launch	SCAN ME ***Recommended:*** Students will *view the "Knowledge on the Go" video for* ***Module 4, Lesson 31***. Scan the "Knowledge on the Go" video along with the instructor. We encourage parents to assist students with accessing and engaging with the "Knowledge on the Go" videos.
Guided Practice	***Recommended:*** *Students will complete the Problem Set* for ***Module 4, Lesson 31*** from the "Knowledge on the Go" video along with the instructor. These are included in this academic packet.
Closing	**Recommended:** Students will reflect and share their learning on Module 4 Lesson 31.
Extend	SCAN ME ***Recommended:*** Students will complete the "Teacher Assigned" lesson in i-Ready. Visit Clever.com to access i-Ready.
Intervention	***Recommended:*** Students will work on their individual Learning Path (My Path) in i-Ready. Visit Clever.com to access i-Ready.

Click the Knowledge on the Go Lesson Materials link or scan the Knowledge on the Go QR Code in the Materials section. Then scroll down and click on the corresponding Module and Lesson. Problem sets are included in this academic packet.

Daily Fluency Practice

Mathematical Fluencies:

In Grade 6, students are expected to know multi-digit division and multi-digit decimal operations by end of year. This is a great time to practice these skills.

Lesson 32

Standard	6.EE.B.5, 6.EE.B.6, 6.EE.B.7, 6.EE.C.9
Learning Target	Students analyze an equation in two variables, choose an independent variable and a dependent variable, make a table, and make a graph for the equation by plotting the points in the table. For the graph, the independent variable is usually represented by the horizontal axis, and the dependent variable is usually represented by the vertical axis.
Launch	SCAN ME ***Recommended:*** Students will *view the "Knowledge on the Go" video for* ***Module 4, Lesson 32***. Scan the "Knowledge on the Go" video along with the instructor. We encourage parents to assist students with accessing and engaging with the "Knowledge on the Go" videos.
Guided Practice	***Recommended:*** *Students will complete the Problem Set* for ***Module 4, Lesson 32*** from the "Knowledge on the Go" video along with the instructor. These are included in this academic packet.
Closing	***Recommended:*** *Students will reflect and share their learning on Module 4 Lesson 32.*
Extend	SCAN ME ***Recommended:*** Students will complete the "Teacher Assigned" lesson in i-Ready. Visit Clever.com to access i-Ready.
Intervention	***Recommended:*** Students will work on their individual Learning Path (My Path) in i-Ready. Visit Clever.com to access i-Ready.

Click the Knowledge on the Go Lesson Materials link or scan the Knowledge on the Go QR Code in the Materials section. Then scroll down and click on the corresponding Module and Lesson. Problem sets are included in this academic packet.

Daily Fluency Practice

Mathematical Fluencies:

In Grade 6, students are expected to know multi-digit division and multi-digit decimal operations by end of year. This is a great time to practice these skills.

Lesson 33

Standard	6.EE.B.5, 6.EE.B.6, 6.EE.B.8
Learning Target	Students understand that an inequality with numerical expressions is either true or false. It is true if the numbers calculated on each side of the inequality sign result in a correct statement and is false otherwise. Students understand solving an inequality is answering the question of which values from a specified set, if any, make the inequality true.
Launch	SCAN ME ***Recommended:*** Students will *view the "Knowledge on the Go" video for* ***Module 4, Lesson 33***. Scan the "Knowledge on the Go" video along with the instructor. We encourage parents to assist students with accessing and engaging with the "Knowledge on the Go" videos.
Guided Practice	***Recommended:*** *Students will complete the Problem Set* for ***Module 4, Lesson 33*** from the "Knowledge on the Go" video along with the instructor. These are included in this academic packet.
Closing	***Recommended:*** *Students will reflect and share their learning on Module 4 Lesson 33.*
Extend	SCAN ME ***Recommended:*** Students will complete the "Teacher Assigned" lesson in i-Ready. Visit Clever.com to access i-Ready.
Intervention	***Recommended:*** Students will work on their individual Learning Path (My Path) in i-Ready. Visit Clever.com to access i-Ready.

Click the Knowledge on the Go Lesson Materials link or scan the Knowledge on the Go QR Code in the Materials section. Then scroll down and click on the corresponding Module and Lesson. Problem sets are included in this academic packet.

Grade 6 Mathematics

WEEKLY DISTANCE LEARNING STUDENT SCHEDULE

6/01/20 to 6/05/20 Week 8 (5 days)

Directions: **Parents:** Assist students with accessing the "Knowledge on the Go" videos, Problem Sets in this packet, and i-Ready through the Clever app. Also, monitor student's progress while working on the videos and/or online lessons.

Students: Click or watch the "Knowledge on the Go" video each day and complete the daily Problem Set. Visit i-ready to continue your learning path and complete Teacher-Assigned lessons.

Target Standard(s) 6.EE.B.5, 6.EE.B.6, 6.EE.B.8, 6.G.A.1

Module Module 4: Expressions and Equations

Topic Topic H: Applications of Equations

Module 5: Area, Surface Area, and Volume Problems

Topic A: Area of Triangles, Quadrilaterals, and Polygons

Materials Needed:

- Access to Knowledge on the Go Lesson Videos & Resources including Templates & Homework Helpers which provide guidance with worked examples for each lesson.
- Clever Access for i-Ready (see links and QR codes below)
- Paper, Pencil, Academic Packet including Problem Sets

SCAN ME Knowledge on the Go Videos

SCAN ME clever.com

SCAN ME Module 4

SCAN ME Module 5

	Daily Lesson (50 minutes)	Extension (10-15 minutes)	Intervention (15 minutes)
Day 34	Knowledge on the Go Lesson Materials for Module 4, Lesson 34	i-Ready "Teacher Assigned" Lesson	i-Ready "My Path" Lesson
Day 35	Knowledge on the Go Lesson Materials for Module 5, Lesson 1	i-Ready "Teacher Assigned" Lesson	i-Ready "My Path" Lesson
Day 36	Knowledge on the Go Lesson Materials for Module 5, Lesson 2	i-Ready "Teacher Assigned" Lesson	i-Ready "My Path" Lesson
Day 37	Knowledge on the Go Lesson Materials for Module 5, Lesson 3	i-Ready "Teacher Assigned" Lesson	i-Ready "My Path" Lesson
Day 38	Knowledge on the Go Lesson Materials for Module 5, Lesson 4	i-Ready "Teacher Assigned" Lesson	i-Ready "My Path" Lesson

Click the Knowledge on the Go Lesson Materials link or scan the Knowledge on the Go QR Code in the Materials section. Then scroll down and click on the corresponding Module and Lesson. Problem sets are included in this academic packet.

Daily Fluency Practice

Mathematical Fluencies:

In Grade 6, students are expected to know multi-digit division and multi-digit decimal operations by end of year. This is a great time to practice these skills.

Lesson 34

Standard	6.EE.B.5, 6.EE.B.6, 6.EE.B.8
Learning Target	Students recognize that inequalities of the form x < c and x > c , where x is a variable and c is a fixed number, have infinitely many solutions when the values of x come from a set of rational numbers.
Launch	SCAN ME ***Recommended:*** Students will *view the "Knowledge on the Go" video for* ***Module 4, Lesson 34***. Scan the "Knowledge on the Go" video along with the instructor. We encourage parents to assist students with accessing and engaging with the "Knowledge on the Go" videos.
Guided Practice	***Recommended:*** *Students will complete the Problem Set* for ***Module 4, Lesson 34*** from the "Knowledge on the Go" video along with the instructor. These are included in this academic packet.
Closing	**Recommended:** Students will reflect and share their learning on Module 4 Lesson 34.
Extend	SCAN ME ***Recommended:*** Students will complete the "Teacher Assigned" lesson in i-Ready. Visit Clever.com to access i-Ready.
Intervention	***Recommended:*** Students will work on their individual Learning Path (My Path) in i-Ready. Visit Clever.com to access i-Ready.

Click the Knowledge on the Go Lesson Materials link or scan the Knowledge on the Go QR Code in the Materials section. Then scroll down and click on the corresponding Module and Lesson. Problem sets are included in this academic packet.

Daily Fluency Practice

Mathematical Fluencies:

In Grade 6, students are expected to know multi-digit division and multi-digit decimal operations by end of year. This is a great time to practice these skills.

Lesson 35

Standard	6.G.A.1
Learning Target	Students show the area formula for the region bounded by a parallelogram by composing it into rectangles. They understand that the area of a parallelogram is the area of the region bounded by the parallelogram.
Launch	SCAN ME ***Recommended:*** Students will *view the "Knowledge on the Go" video for* ***Module 5, Lesson 1***. Scan the "Knowledge on the Go" video along with the instructor. We encourage parents to assist students with accessing and engaging with the "Knowledge on the Go" videos.
Guided Practice	***Recommended:*** *Students will complete the Problem Set* for ***Module 5, Lesson 1*** from the "Knowledge on the Go" video along with the instructor. These are included in this academic packet.
Closing	**Recommended:** Students will reflect and share their learning on Module 5 Lesson 1.
Extend	SCAN ME ***Recommended:*** Students will complete the "Teacher Assigned" lesson in i-Ready. Visit Clever.com to access i-Ready.
Intervention	***Recommended:*** Students will work on their individual Learning Path (My Path) in i-Ready. Visit Clever.com to access i-Ready.

Click the Knowledge on the Go Lesson Materials link or scan the Knowledge on the Go QR Code in the Materials section. Then scroll down and click on the corresponding Module and Lesson. Problem sets are included in this academic packet.

Daily Fluency Practice

Mathematical Fluencies:

In Grade 6, students are expected to know multi-digit division and multi-digit decimal operations by end of year. This is a great time to practice these skills.

Lesson 36

Standard	6.G.A.1
Learning Target	Students justify the area formula for a right triangle by viewing the right triangle as part of a rectangle composed of two right triangles.
Launch	SCAN ME ***Recommended:*** Students will *view the "Knowledge on the Go" video for* ***Module 5, Lesson 2***. Scan the "Knowledge on the Go" video along with the instructor. We encourage parents to assist students with accessing and engaging with the "Knowledge on the Go" videos.
Guided Practice	***Recommended:*** *Students will complete the Problem Set* for ***Module 5, Lesson 2*** from the "Knowledge on the Go" video along with the instructor. These are included in this academic packet.
Closing	***Recommended:*** *Students will reflect and share their learning on Module 5 Lesson 2.*
Extend	SCAN ME ***Recommended:*** Students will complete the "Teacher Assigned" lesson in i-Ready. Visit Clever.com to access i-Ready.
Intervention	***Recommended:*** Students will work on their individual Learning Path (My Path) in i-Ready. Visit Clever.com to access i-Ready.

Click the Knowledge on the Go Lesson Materials link or scan the Knowledge on the Go QR Code in the Materials section. Then scroll down and click on the corresponding Module and Lesson. Problem sets are included in this academic packet.

Daily Fluency Practice

Mathematical Fluencies:

In Grade 6, students are expected to know multi-digit division and multi-digit decimal operations by end of year. This is a great time to practice these skills.

Lesson 37

Standard	6.G.A.1
Learning Target	Students show the area formula for a triangular region by decomposing a triangle into right triangles. For a given triangle, the height of the triangle is the length of the altitude. The length of the base is called either the length base or, more commonly, the base. Students understand that the height of the triangle is the perpendicular segment from a vertex of a triangle to the line containing the opposite side. The opposite side is called the base. Students understand that any side of a triangle can be considered a base and that the choice of base determines the height.
Launch	SCAN ME ***Recommended:*** Students will *view the "Knowledge on the Go" video for* ***Module 5, Lesson 3***. Scan the "Knowledge on the Go" video along with the instructor. We encourage parents to assist students with accessing and engaging with the "Knowledge on the Go" videos.
Guided Practice	***Recommended:*** *Students will complete the Problem Set* for ***Module 5, Lesson 3*** from the "Knowledge on the Go" video along with the instructor. These are included in this academic packet.
Closing	***Recommended:*** *Students will reflect and share their learning on Module 5 Lesson 3.*
Extend	SCAN ME ***Recommended:*** Students will complete the "Teacher Assigned" lesson in i-Ready. Visit Clever.com to access i-Ready.
Intervention	***Recommended:*** Students will work on their individual Learning Path (My Path) in i-Ready. Visit Clever.com to access i-Ready.

Click the Knowledge on the Go Lesson Materials link or scan the Knowledge on the Go QR Code in the Materials section. Then scroll down and click on the corresponding Module and Lesson. Problem sets are included in this academic packet.

Daily Fluency Practice

Mathematical Fluencies:

In Grade 6, students are expected to know multi-digit division and multi-digit decimal operations by end of year. This is a great time to practice these skills.

Lesson 38

Standard	6.G.A.1
Learning Target	Students construct the altitude for three different cases: an altitude that is a side of a right angle, an altitude that lies over the base, and an altitude that is outside the triangle. Students deconstruct triangles to justify that the area of a triangle is exactly one half the area of a parallelogram.
Launch	SCAN ME ***Recommended:*** Students will *view the "Knowledge on the Go" video for* ***Module 5, Lesson 4***. Scan the "Knowledge on the Go" video along with the instructor. We encourage parents to assist students with accessing and engaging with the "Knowledge on the Go" videos.
Guided Practice	***Recommended:*** *Students will complete the Problem Set* for ***Module 5, Lesson 4*** from the "Knowledge on the Go" video along with the instructor. These are included in this academic packet.
Closing	***Recommended:*** *Students will reflect and share their learning on Module 5 Lesson 4.*
Extend	SCAN ME ***Recommended:*** Students will complete the "Teacher Assigned" lesson in i-Ready. Visit Clever.com to access i-Ready.
Intervention	***Recommended:*** Students will work on their individual Learning Path (My Path) in i-Ready. Visit Clever.com to access i-Ready.

Click the Knowledge on the Go Lesson Materials link or scan the Knowledge on the Go QR Code in the Materials section. Then scroll down and click on the corresponding Module and Lesson. Problem sets are included in this academic packet.

Grade 6 Mathematics

WEEKLY DISTANCE LEARNING STUDENT SCHEDULE

6/08/20 to 6/12/20 Week 9 (5 days)

Directions: **Parents:** Assist students with accessing the "Knowledge on the Go" videos, Problem Sets in this packet, and i-Ready through the Clever app. Also, monitor student's progress while working on the videos and/or online lessons.

Students: Click or watch the "Knowledge on the Go" video each day and complete the daily Problem Set. Visit i-ready to continue your learning path and complete Teacher-Assigned lessons.

Target Standard(s) 6.G.A.1, 6.G.A.3

Module Module 5: Area, Surface Area, and Volume Problems

Topic Topic A: Area of Triangles, Quadrilaterals, and Polygons
Topic B: Polygons on the Coordinate Plane

Materials Needed:

- Access to Knowledge on the Go Lesson Videos & Resources including Templates & Homework Helpers which provide guidance with worked examples for each lesson.
- Clever Access for i-Ready (see links and QR codes below)
- Paper, Pencil, Academic Packet including Problem Sets

SCAN ME Knowledge on the Go Videos

SCAN ME clever.com

SCAN ME Additional Resources

	Daily Lesson (50 minutes)	Extension (10-15 minutes)	Intervention (15 minutes)
Day 39	Knowledge on the Go Lesson Materials for Module 5, Lesson 5	i-Ready "Teacher Assigned" Lesson	i-Ready "My Path" Lesson
Day 40	Knowledge on the Go Lesson Materials for Module 5, Lesson 6	i-Ready "Teacher Assigned" Lesson	i-Ready "My Path" Lesson
Day 41	Knowledge on the Go Lesson Materials for Module 5, Lesson 7	i-Ready "Teacher Assigned" Lesson	i-Ready "My Path" Lesson
Day 42	Knowledge on the Go Lesson Materials for Module 5, Lesson 8	i-Ready "Teacher Assigned" Lesson	i-Ready "My Path" Lesson
Day 43	Knowledge on the Go Lesson Materials for Module 5, Lesson 9	i-Ready "Teacher Assigned" Lesson	i-Ready "My Path" Lesson

Click the Knowledge on the Go Lesson Materials link or scan the Knowledge on the Go QR Code in the Materials section. Then scroll down and click on the corresponding Module and Lesson. Problem sets are included in this academic packet.

Daily Fluency Practice

Mathematical Fluencies:

In Grade 6, students are expected to know multi-digit division and multi-digit decimal operations by end of year. This is a great time to practice these skills.

Lesson 39

Standard	6.G.A.1
Learning Target	Students show the area formula for the region bounded by a polygon by decomposing the region into triangles and other polygons. They understand that the area of a polygon is actually the area of the region bounded by the polygon. Students find the area for the region bounded by a trapezoid by decomposing the region into two triangles. They understand that the area of a trapezoid is actually the area of the region bounded by the trapezoid. Students decompose rectangles to determine the area of other quadrilaterals.
Launch	SCAN ME ***Recommended:*** Students will *view the "Knowledge on the Go" video for* ***Module 5, Lesson 5***. Scan the "Knowledge on the Go" video along with the instructor. We encourage parents to assist students with accessing and engaging with the "Knowledge on the Go" videos.
Guided Practice	***Recommended:*** *Students will complete the Problem Set* for ***Module 5, Lesson 5*** from the "Knowledge on the Go" video along with the instructor. These are included in this academic packet.
Closing	**Recommended:** Students will reflect and share their learning on Module 5 Lesson 5.
Extend	SCAN ME ***Recommended:*** Students will complete the "Teacher Assigned" lesson in i-Ready. Visit Clever.com to access i-Ready.
Intervention	***Recommended:*** Students will work on their individual Learning Path (My Path) in i-Ready. Visit Clever.com to access i-Ready.

Click the Knowledge on the Go Lesson Materials link or scan the Knowledge on the Go QR Code in the Materials section. Then scroll down and click on the corresponding Module and Lesson. Problem sets are included in this academic packet.

Daily Fluency Practice

Mathematical Fluencies:

In Grade 6, students are expected to know multi-digit division and multi-digit decimal operations by end of year. This is a great time to practice these skills.

Lesson 40

Standard	6.G.A.1
Learning Target	Students determine the area of composite figures in real-life contextual situations using composition and decomposition of polygons. Students determine the area of a missing region using composition and decomposition of polygons.
Launch	SCAN ME ***Recommended:*** Students will *view the "Knowledge on the Go" video for* ***Module 5, Lesson 6***. Scan the "Knowledge on the Go" video along with the instructor. We encourage parents to assist students with accessing and engaging with the "Knowledge on the Go" videos.
Guided Practice	***Recommended:*** *Students will complete the Problem Set* for ***Module 5, Lesson 6*** from the "Knowledge on the Go" video along with the instructor. These are included in this academic packet.
Closing	***Recommended:*** *Students will reflect and share their learning on Module 5 Lesson 6.*
Extend	SCAN ME ***Recommended:*** Students will complete the "Teacher Assigned" lesson in i-Ready. Visit Clever.com to access i-Ready.
Intervention	***Recommended:*** Students will work on their individual Learning Path (My Path) in i-Ready. Visit Clever.com to access i-Ready.

Click the Knowledge on the Go Lesson Materials link or scan the Knowledge on the Go QR Code in the Materials section. Then scroll down and click on the corresponding Module and Lesson. Problem sets are included in this academic packet.

Daily Fluency Practice

Mathematical Fluencies:

In Grade 6, students are expected to know multi-digit division and multi-digit decimal operations by end of year. This is a great time to practice these skills.

Lesson 41

Standard	6.G.A.3
Learning Target	Students use absolute value to determine distance between integers on the coordinate plane in order to find side lengths of polygons.
Launch	SCAN ME ***Recommended:*** Students will *view the "Knowledge on the Go" video for* ***Module 5, Lesson 7***. Scan the "Knowledge on the Go" video along with the instructor. We encourage parents to assist students with accessing and engaging with the "Knowledge on the Go" videos.
Guided Practice	***Recommended:*** *Students will complete the Problem Set* for ***Module 5, Lesson 7*** from the "Knowledge on the Go" video along with the instructor. These are included in this academic packet.
Closing	***Recommended:*** *Students will reflect and share their learning on Module 5 Lesson 7.*
Extend	SCAN ME ***Recommended:*** Students will complete the "Teacher Assigned" lesson in i-Ready. Visit Clever.com to access i-Ready.
Intervention	***Recommended:*** Students will work on their individual Learning Path (My Path) in i-Ready. Visit Clever.com to access i-Ready.

Click the Knowledge on the Go Lesson Materials link or scan the Knowledge on the Go QR Code in the Materials section. Then scroll down and click on the corresponding Module and Lesson. Problem sets are included in this academic packet.

Daily Fluency Practice

Mathematical Fluencies:

In Grade 6, students are expected to know multi-digit division and multi-digit decimal operations by end of year. This is a great time to practice these skills.

Lesson 42

Standard	6.G.A.1, 6.G.A.3
Learning Target	Given coordinates for the vertices, students draw polygons in the coordinate plane. Students find the area enclosed by a polygon by composing or decomposing using polygons with known area formulas. Students name coordinates that define a polygon with specific properties.
Launch	SCAN ME ***Recommended:*** Students will *view the "Knowledge on the Go" video for* ***Module 5, Lesson 8***. Scan the "Knowledge on the Go" video along with the instructor. We encourage parents to assist students with accessing and engaging with the "Knowledge on the Go" videos.
Guided Practice	***Recommended:*** *Students will complete the Problem Set* for ***Module 5, Lesson 8*** from the "Knowledge on the Go" video along with the instructor. These are included in this academic packet.
Closing	***Recommended:*** *Students will reflect and share their learning on Module 5 Lesson 8.*
Extend	SCAN ME ***Recommended:*** Students will complete the "Teacher Assigned" lesson in i-Ready. Visit Clever.com to access i-Ready.
Intervention	***Recommended:*** Students will work on their individual Learning Path (My Path) in i-Ready. Visit Clever.com to access i-Ready.

Click the Knowledge on the Go Lesson Materials link or scan the Knowledge on the Go QR Code in the Materials section. Then scroll down and click on the corresponding Module and Lesson. Problem sets are included in this academic packet.

Daily Fluency Practice

Mathematical Fluencies:

In Grade 6, students are expected to know multi-digit division and multi-digit decimal operations by end of year. This is a great time to practice these skills.

Lesson 43

Standard	6.G.A.1, 6.G.A.3
Learning Target	Students find the perimeter of irregular figures using coordinates to find the length of a side joining points with the same first coordinate or the same second coordinate. Students find the area enclosed by a polygon on the coordinate plane by composing or decomposing using polygons with known area formulas.
Launch	SCAN ME ***Recommended:*** Students will *view the "Knowledge on the Go" video for* ***Module 5, Lesson 9***. Scan the "Knowledge on the Go" video along with the instructor. We encourage parents to assist students with accessing and engaging with the "Knowledge on the Go" videos.
Guided Practice	***Recommended:*** *Students will complete the Problem Set* for ***Module 5, Lesson 9*** from the "Knowledge on the Go" video along with the instructor. These are included in this academic packet.
Closing	***Recommended:*** *Students will reflect and share their learning on Module 5 Lesson 9.*
Extend	SCAN ME ***Recommended:*** Students will complete the "Teacher Assigned" lesson in i-Ready. Visit Clever.com to access i-Ready.
Intervention	***Recommended:*** Students will work on their individual Learning Path (My Path) in i-Ready. Visit Clever.com to access i-Ready.

Click the Knowledge on the Go Lesson Materials link or scan the Knowledge on the Go QR Code in the Materials section. Then scroll down and click on the corresponding Module and Lesson. Problem sets are included in this academic packet.

Grade 6 Mathematics

WEEKLY DISTANCE LEARNING STUDENT SCHEDULE

6/15/20 to 6/19/20 Week 10 (4 days)

Directions: **Parents:** Assist students with accessing the "Knowledge on the Go" videos, Problem Sets in this packet, and i-Ready through the Clever app. Also, monitor student's progress while working on the videos and/or online lessons.

Students: Click or watch the "Knowledge on the Go" video each day and complete the daily Problem Set. Visit i-ready to continue your learning path and complete Teacher-Assigned lessons.

Target Standard(s) 6.G.A.2, 6.G.A.3

Module Module 5: Area, Surface Area, and Volume Problems

Topic Topic B: Polygons on the Coordinate Plane
Topic C: Volume of Right Rectangular Prisms

Materials Needed:

- Access to Knowledge on the Go Lesson Videos & Resources including Templates & Homework Helpers which provide guidance with worked examples for each lesson.
- Clever Access for i-Ready (see links and QR codes below)
- Paper, Pencil, Academic Packet including Problem Sets

SCAN ME Knowledge on the Go Videos

SCAN ME clever.com

SCAN ME Additional Resources

	Daily Lesson (50 minutes)	Extension (10-15 minutes)	Intervention (15 minutes)
Day 44	Knowledge on the Go Lesson Materials for Module 5, Lesson 10	i-Ready "Teacher Assigned" Lesson	i-Ready "My Path" Lesson
Day 45	Knowledge on the Go Lesson Materials for Module 5, Lesson 11	i-Ready "Teacher Assigned" Lesson	i-Ready "My Path" Lesson
Day 46	Knowledge on the Go Lesson Materials for Module 5, Lesson 12	i-Ready "Teacher Assigned" Lesson	i-Ready "My Path" Lesson
Day 47	Knowledge on the Go Lesson Materials for Module 5, Lesson 13	i-Ready "Teacher Assigned" Lesson	i-Ready "My Path" Lesson

Click the Knowledge on the Go Lesson Materials link or scan the Knowledge on the Go QR Code in the Materials section. Then scroll down and click on the corresponding Module and Lesson. Problem sets are included in this academic packet.

Daily Fluency Practice

Mathematical Fluencies:

In Grade 6, students are expected to know multi-digit division and multi-digit decimal operations by end of year. This is a great time to practice these skills.

Lesson 44

Standard	6.G.A.3
Learning Target	Students determine distance, perimeter, and area in real-world contexts.
Launch	SCAN ME ***Recommended:*** Students will *view the "Knowledge on the Go" video for* ***Module 5, Lesson 10***. Scan the "Knowledge on the Go" video along with the instructor. We encourage parents to assist students with accessing and engaging with the "Knowledge on the Go" videos.
Guided Practice	***Recommended:*** *Students will complete the Problem Set* for ***Module 5, Lesson 10*** from the "Knowledge on the Go" video along with the instructor. These are included in this academic packet.
Closing	**Recommended:** Students will reflect and share their learning on Module 5 Lesson 10.
Extend*	SCAN ME ***Recommended:*** Students will complete the "Teacher Assigned" lesson in i-Ready. Visit Clever.com to access i-Ready.
Intervention	***Recommended:*** Students will work on their individual Learning Path (My Path) in i-Ready. Visit Clever.com to access i-Ready.

Click the Knowledge on the Go Lesson Materials link or scan the Knowledge on the Go QR Code in the Materials section. Then scroll down and click on the corresponding Module and Lesson. Problem sets are included in this academic packet.

Daily Fluency Practice

Mathematical Fluencies:

In Grade 6, students are expected to know multi-digit division and multi-digit decimal operations by end of year. This is a great time to practice these skills.

Lesson 45

Standard	6.G.A.2
Learning Target	Students extend their understanding of the volume of a right rectangular prism with integer side lengths to right rectangular prisms with fractional side lengths. They apply the formula $V = l \cdot w \cdot h$ to find the volume of a right rectangular prism and use the correct volume units when writing the answer.
Launch	SCAN ME ***Recommended:*** Students will *view the "Knowledge on the Go" video for* ***Module 5, Lesson 11***. Scan the "Knowledge on the Go" video along with the instructor. We encourage parents to assist students with accessing and engaging with the "Knowledge on the Go" videos.
Guided Practice	***Recommended:*** *Students will complete the Problem Set* for ***Module 5, Lesson 11*** from the "Knowledge on the Go" video along with the instructor. These are included in this academic packet.Module 5, Lesson 11 Problem Set
Closing	***Recommended:*** *Students will reflect and share their learning on Module 5 Lesson 11.*
Extend	SCAN ME ***Recommended:*** Students will complete the "Teacher Assigned" lesson in i-Ready. Visit Clever.com to access i-Ready.
Intervention	***Recommended:*** Students will work on their individual Learning Path (My Path) in i-Ready. Visit Clever.com to access i-Ready.

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Daily Fluency Practice

Mathematical Fluencies:

In Grade 6, students are expected to know multi-digit division and multi-digit decimal operations by end of year. This is a great time to practice these skills.

Lesson 46

Standard	6.G.A.2
Learning Target	Students extend the volume formula for a right rectangular prism to the formula V = Area of base · height . They understand that any face can be the base.
Launch	SCAN ME ***Recommended:*** Students will *view the "Knowledge on the Go" video for* ***Module 5, Lesson 12***. Scan the "Knowledge on the Go" video along with the instructor. We encourage parents to assist students with accessing and engaging with the "Knowledge on the Go" videos.
Guided Practice	***Recommended:*** *Students will complete the Problem Set* for ***Module 5, Lesson 12*** from the "Knowledge on the Go" video along with the instructor. These are included in this academic packet.
Closing	***Recommended:*** *Students will reflect and share their learning on Module 5 Lesson 12.*
Extend	SCAN ME ***Recommended:*** Students will complete the "Teacher Assigned" lesson in i-Ready. Visit Clever.com to access i-Ready.
Intervention	***Recommended:*** Students will work on their individual Learning Path (My Path) in i-Ready. Visit Clever.com to access i-Ready.

Click the Knowledge on the Go Lesson Materials link or scan the Knowledge on the Go QR Code in the Materials section. Then scroll down and click on the corresponding Module and Lesson. Problem sets are included in this academic packet.

Daily Fluency Practice

Mathematical Fluencies:

In Grade 6, students are expected to know multi-digit division and multi-digit decimal operations by end of year. This is a great time to practice these skills.

Lesson 47

Standard	6.G.A.2
Learning Target	Students develop, understand, and apply formulas for finding the volume of right rectangular prisms and cubes.
Launch	SCAN ME  ***Recommended:*** Students will *view the "Knowledge on the Go" video for* ***Module 5, Lesson 13***. Scan the "Knowledge on the Go" video along with the instructor. We encourage parents to assist students with accessing and engaging with the "Knowledge on the Go" videos.
Guided Practice	***Recommended:*** *Students will complete the Problem Set* for ***Module 5, Lesson 13*** from the "Knowledge on the Go" video along with the instructor. These are included in this academic packet.
Closing	***Recommended:*** *Students will reflect and share their learning on Module 5 Lesson 13.*
Extend	SCAN ME  ***Recommended:*** Students will complete the "Teacher Assigned" lesson in i-Ready. Visit Clever.com to access i-Ready.
Intervention	***Recommended:*** Students will work on their individual Learning Path (My Path) in i-Ready. Visit Clever.com to access i-Ready.

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Learn, Practice, Succeed

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Module 4

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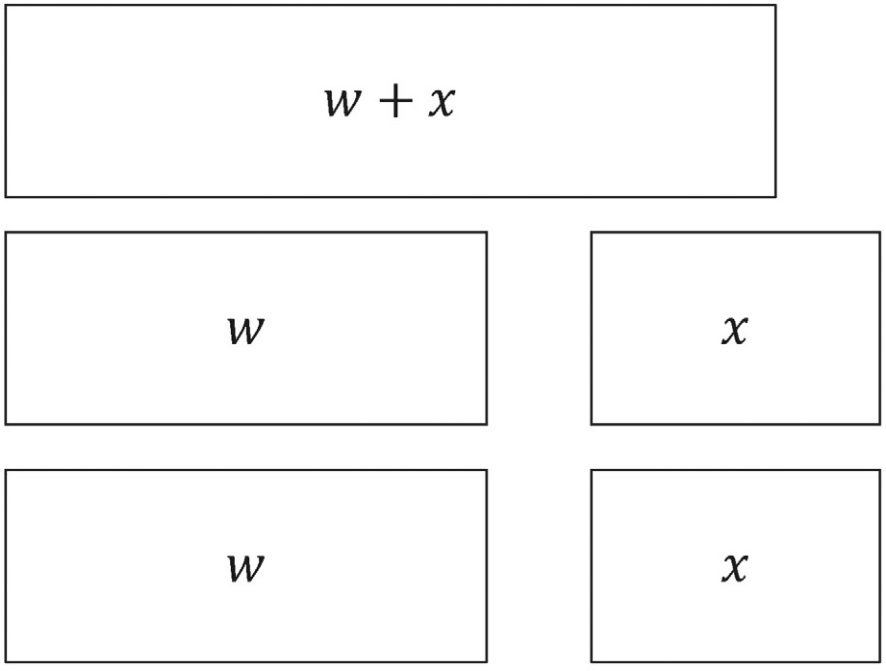

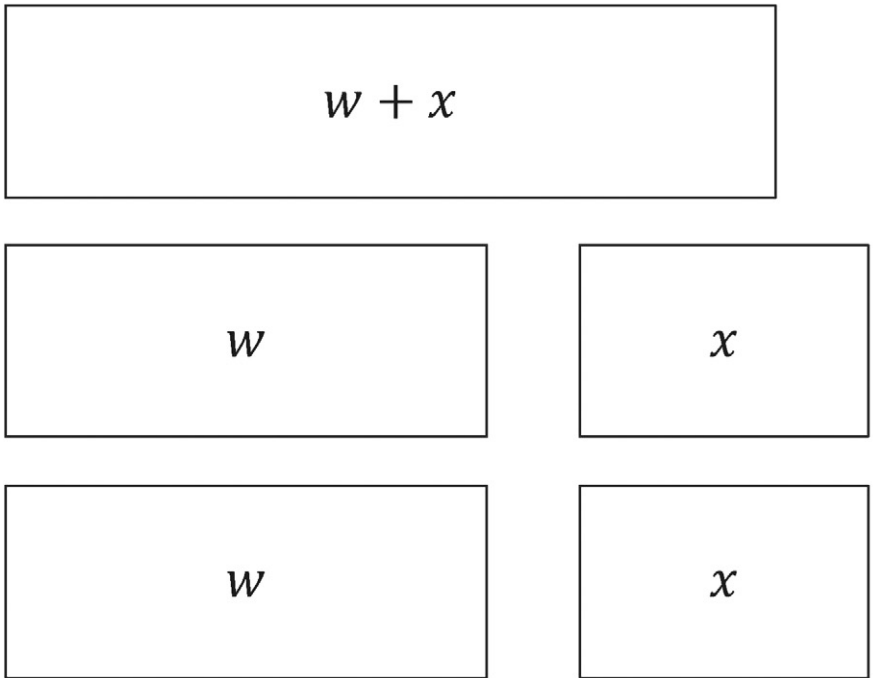

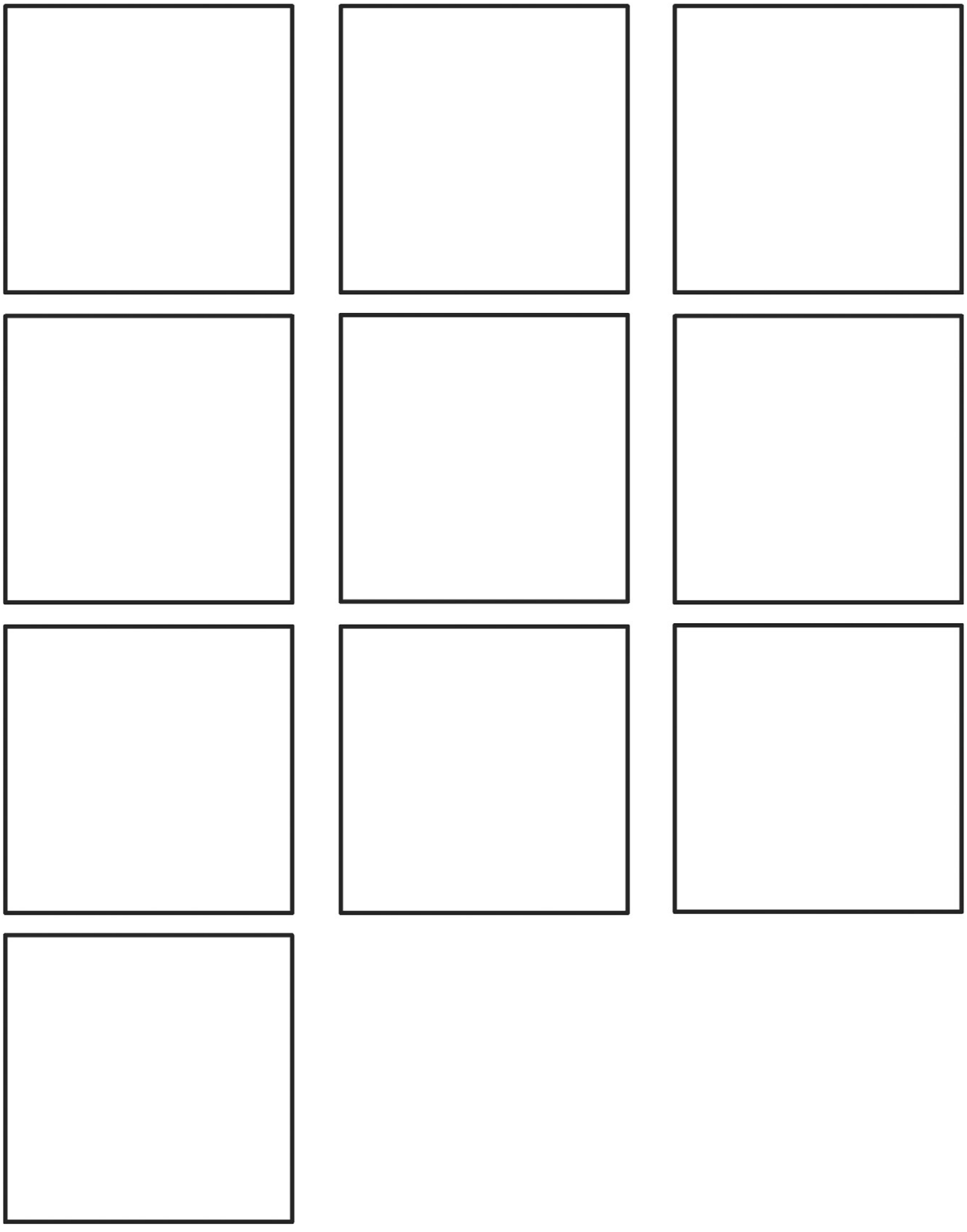

1. Fill in each blank.
   a. $\_\_\_\_\_ + 15 - 15 = 21$
   b. $450 - 230 + 230 = \_\_\_\_\_$
   c. $1289 - \_\_\_\_\_ + 856 = 1289$

2. Why are the equations $w - x + x = w$ and $w + x - x = w$ called *identities*?

1. Fill in each blank to make the equation true.
   a. $132 \div 3 \times 3 =$ ____
   b. ____ $\div 25 \times 25 = 225$
   c. $56 \times$ ____ $\div 8 = 56$
   d. $452 \times 12 \div$ ____ $= 452$

2. How is the relationship of addition and subtraction similar to the relationship of multiplication and division?

Write an equivalent expression to show the relationship of multiplication and addition.

1. $10 + 10 + 10$

2. $4 + 4 + 4 + 4 + 4 + 4 + 4$

3. 8×2

4. 3×9

5. $6m$

6. $d + d + d + d + d$

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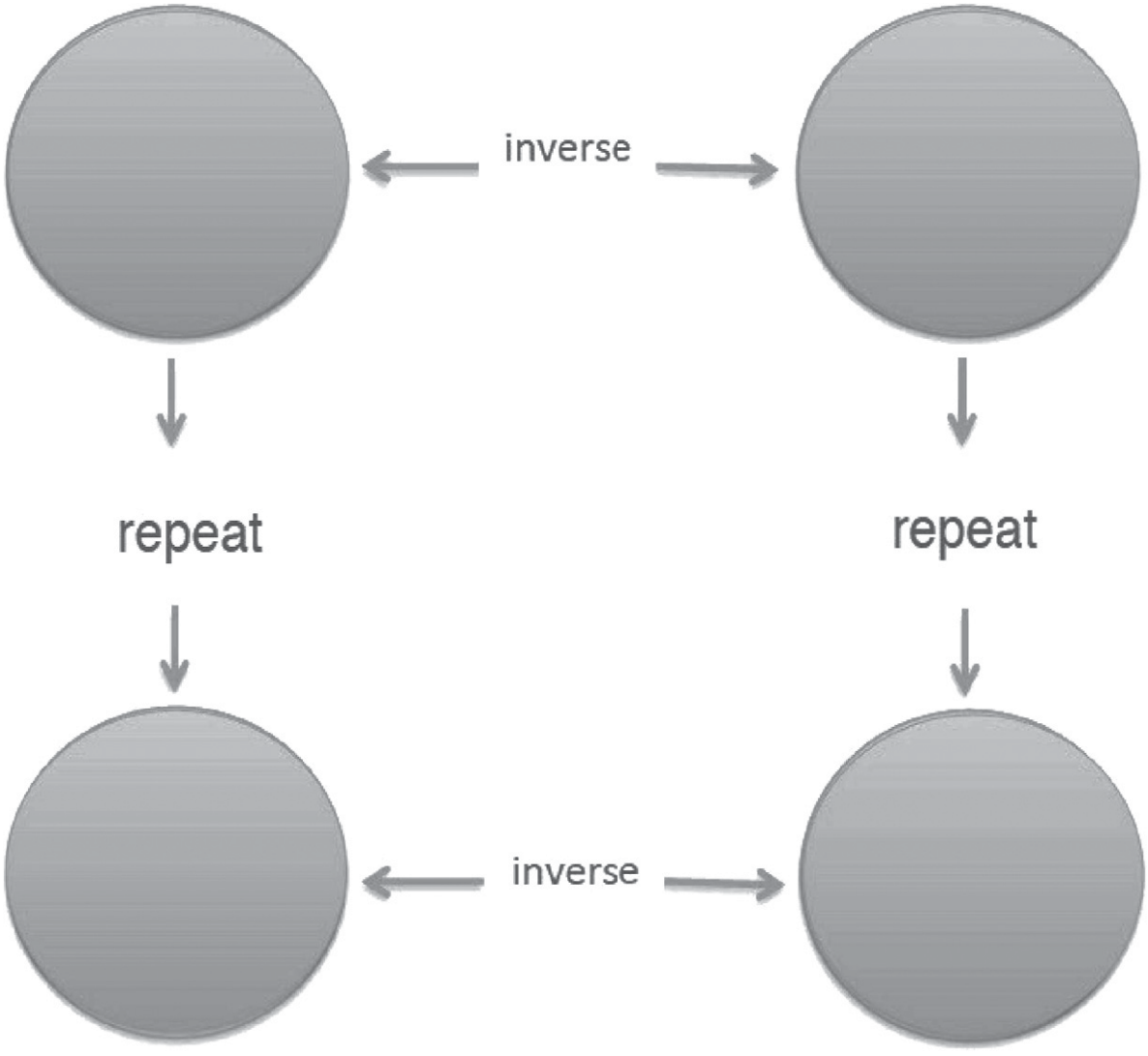


Build subtraction equations using the indicated equations.

	Division Equation	Divisor Indicates the Size of the Unit	Tape Diagram	What is x, y, z?
1.	$24 \div x = 4$			
2.	$36 \div x = 6$			
3.	$28 \div y = 7$			
4.	$30 \div y = 5$			
5.	$16 \div z = 4$			

	Division Equation	Divisor Indicates the Number of Units	Tape Diagram	What is x, y, z?
1.	$24 \div x = 4$			
2.	$36 \div x = 6$			
3.	$28 \div y = 7$			
4.	$30 \div y = 5$			
5.	$16 \div z = 4$			

1. Complete the table by filling in the blank cells. Use a calculator when needed.

Exponential Form	Expanded Form	Standard Form
3^5		
	$4 \times 4 \times 4$	
$(1.9)^2$		
$\left(\frac{1}{2}\right)^5$		

2. Why do whole numbers raised to an exponent get greater, while fractions raised to an exponent get smaller?

3. The powers of 2 that are in the range 2 through $1{,}000$ are $2, 4, 8, 16, 32, 64, 128, 256$, and 512. Find all the powers of 3 that are in the range 3 through $1{,}000$.

4. Find all the powers of 4 in the range 4 through $1{,}000$.

5. Write an equivalent expression for $n \times a$ using only addition.

6. Write an equivalent expression for w^b using only multiplication.
   a. Explain what w is in this new expression.
   b. Explain what b is in this new expression.

7. What is the advantage of using exponential notation?

8. What is the difference between $4x$ and x^4? Evaluate both of these expressions when $x = 2$.

Example 1: Expressions with Only Addition, Subtraction, Multiplication, and Division

What operations are evaluated first?

What operations are always evaluated last?

Exercises 1–3

1. $4 + 2 \times 7$

2. $36 \div 3 \times 4$

3. $20 - 5 \times 2$

Example 2: Expressions with Four Operations and Exponents

$$4 + 9^2 \div 3 \times 2 - 2$$

What operation is evaluated first?

What operations are evaluated next?

What operations are always evaluated last?

What is the final answer?

Exercises 4–5

4. $90 - 5^2 \times 3$

5. $4^3 + 2 \times 8$

Example 3: Expressions with Parentheses

Consider a family of 4 that goes to a soccer game. Tickets are $5.00 each. The mom also buys a soft drink for $2.00. How would you write this expression?

How much will this outing cost?

Consider a different scenario: The same family goes to the game as before, but each of the family members wants a drink. How would you write this expression?

Why would you add the 5 and 2 first?

How much will this outing cost?

How many groups are there?

What does each group comprise?

Exercises 6–7

6. $2 + (9^2 - 4)$

7. $2 \cdot \big(13 + 5 - 14 \div (3 + 4)\big)$

Example 4: Expressions with Parentheses and Exponents

$$2 \times (3 + 4^2)$$

Which value will we evaluate first within the parentheses? Evaluate.

Evaluate the rest of the expression.

What do you think will happen when the exponent in this expression is outside of the parentheses?

$$2 \times (3 + 4)^2$$

Will the answer be the same?

Which should we evaluate first? Evaluate.

What happens differently here than in our last example?

What should our next step be?

Evaluate to find the final answer.

What do you notice about the two answers?

What was different between the two expressions?

What conclusions can you draw about evaluating expressions with parentheses and exponents?

Exercises 8–9

8. $7 + (12 - 3^2)$

9. $7 + (12 - 3)^2$

Lesson Summary

NUMERICAL EXPRESSION: A *numerical expression* is a number, or it is any combination of sums, differences, products, or divisions of numbers that evaluates to a number.

Statements like "$3 +$" or "$3 \div 0$" are not numerical expressions because neither represents a point on the number line. Note: Raising numbers to whole number powers are considered numerical expressions as well since the operation is just an abbreviated form of multiplication, e.g., $2^3 = 2 \cdot 2 \cdot 2$.

VALUE OF A NUMERICAL EXPRESSION: The *value of a numerical expression* is the number found by evaluating the expression.

For example: $\frac{1}{3} \cdot \left(2 + 4\right) + 7$ is a numerical expression, and its value is 9.

Name _____ Date _____

1. Evaluate this expression: $39 \div (2 + 1) - 2 \times (4 + 1)$.

2. Evaluate this expression: $12 \times (3 + 2^2) \div 2 - 10$.

3. Evaluate this expression: $12 \times (3 + 2)^2 \div 2 - 10$.

Evaluate each expression.

1. $2 \times 4 + 1 \times 7 + 1$

   $\mathbf{8 + 7 + 1}$

   $\mathbf{16}$

I know that multiplication is repeated addition and should be evaluated first in this problem. Then I can find the sum of the resulting addition expression.

2. $(\$1.50 + 2 \times \$0.75 + 5 \times \$0.01) \times 20$

   $\mathbf{(\$1.50 + \$1.50 + \$0.05) \times 20}$

   $\mathbf{\$3.05 \times 20}$

   $\mathbf{\$61}$

I need to evaluate the expressions within the parentheses first. The most powerful operation in the parentheses is multiplication. I will multiply first and then have a resulting addition expression within the parentheses. From there I will evaluate the addition expression in the parentheses first and then multiply by 20.

3. $(3 \times 7) + (7 \times 2) + 2$

   $\mathbf{21 + 14 + 2}$

   $\mathbf{37}$

I know sometimes parentheses group parts of an expression for clarity. In this problem, the parentheses are actually not necessary since the operation of multiplication would be evaluated first.

4. $\big((15 \div 5)^2 - (27 \div 3^2)\big) \times (6 \div 3)$

   $\mathbf{\big((3)^2 - (27 \div 9)\big) \times 2}$

   $\mathbf{(9 - 3) \times 2}$

   $\mathbf{6 \times 2}$

   $\mathbf{12}$

I know that I have to evaluate what is in the parentheses first. But in this problem, exponents are in different places—outside parentheses and inside parentheses. I need to evaluate the exponent inside the parentheses before I can evaluate the expressions inside the parentheses.

Evaluate each expression.

1. $3 \times 5 + 2 \times 8 + 2$

2. $(\$1.75 + 2 \times \$0.25 + 5 \times \$0.05) \times 24$

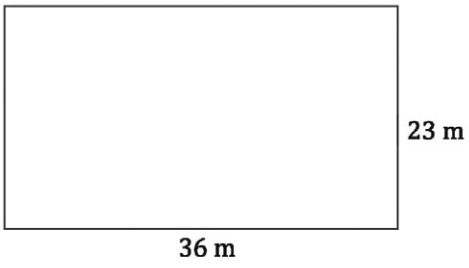
3. $(2 \times 6) + (8 \times 4) + 1$

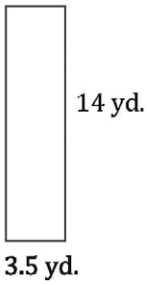
4. $\big((8 \times 1.95) + (3 \times 2.95) + 10.95\big) \times 1.06$

5. $\big((12 \div 3)^2 - (18 \div 3^2)\big) \times (4 \div 2)$

1. Replace the side length of this square with 4 in., and find the area.

2. Complete the table for each of the given figures.





Length of Rectangle	Width of Rectangle	Rectangle's Area Written as an Expression	Rectangle's Area Written as a Number

3. Find the perimeter of each quadrilateral in Problems 1 and 2.

4. Using the formula $V = l \times w \times h$, find the volume of a right rectangular prism when the length of the prism is 45 cm, the width is 12 cm, and the height is 10 cm.

1. State the commutative property of addition using the variables a and b.

2. State the commutative property of multiplication using the variables a and b.

3. State the additive property of zero using the variable b.

4. State the multiplicative identity property of one using the variable b.

5. Demonstrate the property listed in the first column by filling in the third column of the table.

Commutative Property of Addition	$25 + c =$	
Commutative Property of Multiplication	$l \times w =$	
Additive Property of Zero	$h + 0 =$	
Multiplicative Identity Property of One	$v \times 1 =$	

6. Why is there no commutative property for subtraction or division? Show examples.

1. Write two expressions to show a number increased by 11. Then, draw models to prove that both expressions represent the same thing.

2. Write an expression to show the sum of x and y.

3. Write an expression to show h decreased by 13.

4. Write an expression to show k less than 3.5.

5. Write an expression to show the sum of g and h reduced by 11.

6. Write an expression to show 5 less than y, plus g.

7. Write an expression to show 5 less than the sum of y and g.

1. Rewrite the expression in standard form (use the fewest number of symbols and characters possible).
   a. $5 \cdot y$
   b. $7 \cdot d \cdot e$
   c. $5 \cdot 2 \cdot 2 \cdot y \cdot z$
   d. $3 \cdot 3 \cdot 2 \cdot 5 \cdot d$

2. Write the following expressions in expanded form.
   a. $3g$
   b. $11mp$
   c. $20yz$
   d. $15abc$

3. Find the product.
   a. $5d \cdot 7g$
   b. $12ab \cdot 3cd$

1. Use models to prove that $3(a + b)$ is equivalent to $3a + 3b$.

2. Use greatest common factor and the distributive property to write equivalent expressions in factored form for the following expressions.
   a. $4d + 12e$
   b. $18x + 30y$
   c. $21a + 28y$
   d. $24f + 56g$

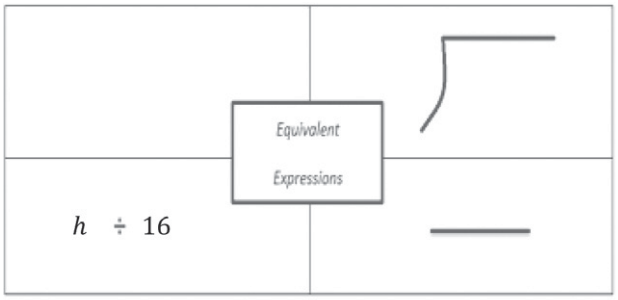
1. Use the distributive property to write the following expressions in expanded form.
   a. $4(x + y)$
   b. $8(a + 3b)$
   c. $3(2x + 11y)$
   d. $9(7a + 6b)$
   e. $c(3a + b)$
   f. $y(2x + 11z)$

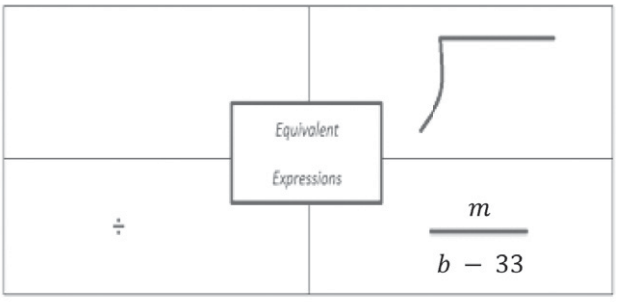
2. Create a model to show that $2(2x + 3y) = 4x + 6y$.

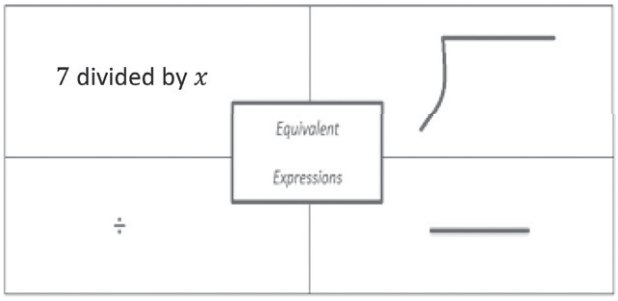
1. Rewrite the expressions using the division symbol and as a fraction.
   a. Three divided by 4
   b. The quotient of m and 11
   c. 4 divided by the sum of h and 7
   d. The quantity x minus 3 divided by y

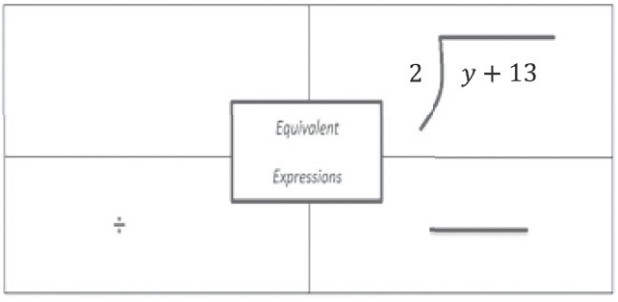
2. Draw a model to show that $x \div 3$ is the same as $\frac{x}{3}$.

Complete the missing spaces in each rectangle set.









1. List five different vocabulary words that could be used to describe each given expression.
   a. $a - d + c$
   b. $20 - 3c$
   c. $\frac{b}{d + 2}$

2. Write an expression using math vocabulary for each expression below.
   a. $5b - 18$
   b. $\frac{n}{2}$
   c. $a + (d - 6)$
   d. $10 + 2b$

Mark the text by underlining key words, and then write an expression using variables and numbers for each of the statements below.

1. Justin can type w words per minute. Melvin can type 4 times as many words as Justin. Write an expression that represents the rate at which Melvin can type.

2. Yohanna swam y yards yesterday. Sheylin swam 5 yards less than half the amount of yards as Yohanna. Write an expression that represents the number of yards Sheylin swam yesterday.

3. A number d is decreased by 5 and then doubled.

4. Nahom had n baseball cards, and Semir had s baseball cards. They combined their baseball cards and then sold 10 of them.

5. The sum of 25 and h is divided by f cubed.

Write an expression using letters and/or numbers for each problem below.

1. 4 less than the quantity of 8 times n

2. 6 times the sum of y and 11

3. The square of m reduced by 49

4. The quotient when the quantity of 17 plus p is divided by 8

5. Jim earned j in tips, and Steve earned s in tips. They combine their tips and then split them equally.

6. Owen has c collector cards. He quadruples the number of cards he has and then combines them with Ian, who has i collector cards.

7. Rae runs 4 times as many miles as Madison and Aaliyah combined. Madison runs m miles, and Aaliyah runs a miles.

8. By using coupons, Mary Jo is able to decrease the retail price of her groceries, g, by $\$125$.

9. To calculate the area of a triangle, you find the product of the base and height and then divide by 2.

10. The temperature today was 10 degrees colder than twice yesterday's temperature, t.

1. Read each story problem. Identify the unknown quantity, and write the addition or subtraction expression that is described. Finally, evaluate your expression using the information given in column four.

Story Problem	Description with Units	Expression	Evaluate the Expression If:	Show Your Work and Evaluate
Sammy has two more baseballs than his brother Ethan.	Let e represent the number of balls Ethan has.	$e + 2$	Ethan has 7 baseballs.	$e + 2$ $7 + 2$ 9 Sammy has 9 baseballs.
Ella wrote 8 more stories than Anna in the fifth grade.			Anna wrote 10 stories in the fifth grade.	
Lisa has been dancing for 3 more years than Danika.			Danika has been dancing for 6 years.	
The New York Rangers scored 2 fewer goals than the Buffalo Sabres last night.			The Rangers scored 3 goals last night.	
George has gone camping 3 times fewer than Dave.			George has gone camping 8 times.	

2. If George went camping 15 times, how could you figure out how many times Dave went camping?

1. Suellen and Tara are in sixth grade, and both take dance lessons at Twinkle Toes Dance Studio. This is Suellen's first year, while this is Tara's fifth year of dance lessons. Both girls plan to continue taking lessons throughout high school.

   a. Complete the table showing the number of years the girls will have danced at the studio.

Grade	Suellen's Years of Experience Dancing	Tara's Years of Experience Dancing
Sixth		
Seventh		
Eighth		
Ninth		
Tenth		
Eleventh		
Twelfth		

   b. If Suellen has been taking dance lessons for Y years, how many years has Tara been taking lessons?

2. Daejoy and Damian collect fossils. Before they went on a fossil-hunting trip, Daejoy had 25 fossils in her collection, and Damian had 16 fossils in his collection. On a 10-day fossil-hunting trip, they each collected 2 new fossils each day.

   a. Make a table showing how many fossils each person had in their collection at the end of each day.

   b. If this pattern of fossil finding continues, how many fossils does Damian have when Daejoy has F fossils?

   c. If this pattern of fossil finding continues, how many fossils does Damian have when Daejoy has 55 fossils?

3. A train consists of three types of cars: box cars, an engine, and a caboose. The relationship among the types of cars is demonstrated in the table below.

Number of Box Cars	Number of Cars in the Train
0	2
1	3
2	4
10	12
100	102

   a. Tom wrote an expression for the relationship depicted in the table as $B + 2$. Theresa wrote an expression for the same relationship as $C - 2$. Is it possible to have two different expressions to represent one relationship? Explain.

   b. What do you think the variable in each student's expression represents? How would you define them?

4. David was 3 when Marieka was born. Complete the table.

Marieka's Age in Years	David's Age in Years
5	8
6	9
7	10
8	11
10	
	20
32	
M	
	D

5. Caitlin and Michael are playing a card game. In the first round, Caitlin scored 200 points, and Michael scored 175 points. In each of the next few rounds, they each scored 50 points. Their score sheet is below.

Caitlin's Points	Michael's Points
200	175
250	225
300	275
350	325

   a. If this trend continues, how many points will Michael have when Caitlin has 600 points?

   b. If this trend continues, how many points will Michael have when Caitlin has C points?

   c. If this trend continues, how many points will Caitlin have when Michael has 975 points?

   d. If this trend continues, how many points will Caitlin have when Michael has M points?

6. The high school marching band has 15 drummers this year. The band director insists that there are to be 5 more trumpet players than drummers at all times.
   a. How many trumpet players are in the marching band this year?
   b. Write an expression that describes the relationship of the number of trumpet players (T) and the number of drummers (D).
   c. If there are only 14 trumpet players interested in joining the marching band next year, how many drummers will the band director want in the band?

1. A radio station plays 12 songs each hour. They never stop for commercials, news, weather, or traffic reports.
   a. Write an expression describing how many songs are played by the radio station in H hours.
   b. How many songs will be played in an entire day (24 hours)?
   c. How long does it take the radio station to play 60 consecutive songs?

2. A ski area has a high-speed lift that can move $2{,}400$ skiers to the top of the mountain each hour.
   a. Write an expression describing how many skiers can be lifted in H hours.
   b. How many skiers can be moved to the top of the mountain in 14 hours?
   c. How long will it take to move $3{,}600$ skiers to the top of the mountain?

3. Polly writes a magazine column, for which she earns $\$35$ per hour. Create a table of values that shows the relationship between the number of hours that Polly works, H, and the amount of money Polly earns in dollars, E.

   a. If you know how many hours Polly works, can you determine how much money she earned? Write the corresponding expression.
   b. Use your expression to determine how much Polly earned after working for $3\frac{1}{2}$ hours.
   c. If you know how much money Polly earned, can you determine how long she worked? Write the corresponding expression.
   d. Use your expression to determine how long Polly worked if she earned $\$52.50$.

4. Mitchell delivers newspapers after school, for which he earns $\$0.09$ per paper. Create a table of values that shows the relationship between the number of papers that Mitchell delivers, P, and the amount of money Mitchell earns in dollars, E.

   a. If you know how many papers Mitchell delivered, can you determine how much money he earned? Write the corresponding expression.

   b. Use your expression to determine how much Mitchell earned by delivering 300 newspapers.

   c. If you know how much money Mitchell earned, can you determine how many papers he delivered? Write the corresponding expression.

   d. Use your expression to determine how many papers Mitchell delivered if he earned $\$58.50$ last week.

5. Randy is an art dealer who sells reproductions of famous paintings. Copies of the *Mona Lisa* sell for $\$475$.

   a. Last year Randy sold $\$9{,}975$ worth of *Mona Lisa* reproductions. How many did he sell?

   b. If Randy wants to increase his sales to at least $\$15{,}000$ this year, how many copies will he need to sell (without changing the price per painting)?

1. Compact discs (CDs) cost $\$12$ each at the Music Emporium. The company charges $\$4.50$ for shipping and handling, regardless of how many compact discs are purchased.

   a. Create a table of values that shows the relationship between the number of compact discs that Mickey buys, D, and the amount of money Mickey spends, C, in dollars.

Number of CDs Mickey Buys (D)	Total Cost in Dollars (C)
1	
2	
3	

   b. If you know how many CDs Mickey orders, can you determine how much money he spends? Write the corresponding expression.

   c. Use your expression to determine how much Mickey spent buying 8 CDs.

2. Mr. Gee's class orders paperback books from a book club. The books cost $\$2.95$ each. Shipping charges are set at $\$4.00$, regardless of the number of books purchased.

   a. Create a table of values that shows the relationship between the number of books that Mr. Gee's class buys, B, and the amount of money they spend, C, in dollars.

Number of Books Ordered (B)	Amount of Money Spent in Dollars (C)
1	
2	
3	

   b. If you know how many books Mr. Gee's class orders, can you determine how much money they spend? Write the corresponding expression.

   c. Use your expression to determine how much Mr. Gee's class spent buying 24 books.

3. Sarah is saving money to take a trip to Oregon. She received $\$450$ in graduation gifts and saves $\$120$ per week working.
   a. Write an expression that shows how much money Sarah has after working W weeks.
   b. Create a table that shows the relationship between the amount of money Sarah has (M) and the number of weeks she works (W).

Amount of Money Sarah Has (M)	Number of Weeks Worked (W)
	1
	2
	3
	4
	5
	6
	7
	8

   c. The trip will cost $\$1{,}200$. How many weeks will Sarah have to work to earn enough for the trip?

4. Mr. Gee's language arts class keeps track of how many words per minute are read aloud by each of the students. They collect this oral reading fluency data each month. Below is the data they collected for one student in the first four months of school.
   a. Assume this increase in oral reading fluency continues throughout the rest of the school year. Complete the table to project the reading rate for this student for the rest of the year.

Month	Number of Words Read Aloud in One Minute
September	126
October	131
November	136
December	141
January	
February	
March	
April	
May	
June	

   b. If this increase in oral reading fluency continues throughout the rest of the school year, when would this student achieve the goal of reading 165 words per minute?
   c. The expression for this student's oral reading fluency is $121 + 5m$, where m represents the number of months during the school year. Use this expression to determine how many words per minute the student would read after 12 months of instruction.

5. When corn seeds germinate, they tend to grow 5 inches in the first week and then 3 inches per week for the remainder of the season. The relationship between the height (H) and the number of weeks since germination (W) is shown below.

   a. Complete the missing values in the table.

Number of Weeks Since Germination (W)	Height of Corn Plant (H)
1	5
2	8
3	11
4	14
5	
6	

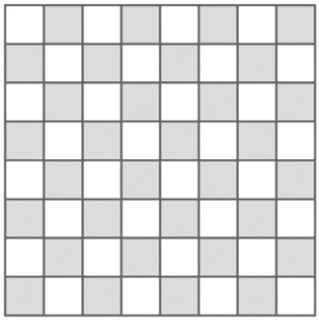
   b. The expression for this height is $2 + 3W$. How tall will the corn plant be after 15 weeks of growth?

6. The Honeymoon Charter Fishing Boat Company only allows newlywed couples on their sunrise trips. There is a captain, a first mate, and a deck hand manning the boat on these trips.

   a. Write an expression that shows the number of people on the boat when there are C couples booked for the trip.

   b. If the boat can hold a maximum of 20 people, how many couples can go on the sunrise fishing trip?

1. A checkerboard has 64 squares on it.



a. If one grain of rice is put on the first square, 2 grains of rice on the second square, 4 grains of rice on the third square, 8 grains of rice on the fourth square, and so on (doubling each time), complete the table to show how many grains of rice are on each square. Write your answers in exponential form on the table below.

Checkerboard Square	Grains of Rice	Checkerboard Square	Grains of Rice	Checkerboard Square	Grains of Rice	Checkerboard Square	Grains of Rice
1		17		33		49	
2		18		34		50	
3		19		35		51	
4		20		36		52	
5		21		37		53	
6		22		38		54	
7		23		39		55	
8		24		40		56	
9		25		41		57	
10		26		42		58	
11		27		43		59	
12		28		44		60	
13		29		45		61	
14		30		46		62	
15		31		47		63	
16		32		48		64	

b. How many grains of rice would be on the last square? Represent your answer in exponential form and standard form. Use the table above to help solve the problem.

c. Would it have been easier to write your answer to part (b) in exponential form or standard form?

2. If an amount of money is invested at an annual interest rate of 6%, it doubles every 12 years. If Alejandra invests \$500, how long will it take for her investment to reach \$2,000 (assuming she does not contribute any additional funds)?

3. The athletics director at Peter's school has created a phone tree that is used to notify team players in the event a game has to be canceled or rescheduled. The phone tree is initiated when the director calls two captains. During the second stage of the phone tree, the captains each call two players. During the third stage of the phone tree, these players each call two other players. The phone tree continues until all players have been notified. If there are 50 players on the teams, how many stages will it take to notify all of the players?

Substitute the value into the variable, and state (in a complete sentence) whether the resulting number sentence is true or false. If true, find a value that would result in a false number sentence. If false, find a value that would result in a true number sentence.

1. $3\frac{5}{6} = 1\frac{2}{3} + h$. Substitute $2\frac{1}{6}$ for h.

2. $39 > 156g$. Substitute $\frac{1}{4}$ for g.

3. $\frac{f}{4} \leq 3$. Substitute 12 for f.

4. $121 - 98 \geq r$. Substitute 23 for r.

5. $\frac{54}{q} = 6$. Substitute 10 for q.

Create a number sentence using the given variable and symbol. The number sentence you write must be true for the given value of the variable.

6. Variable: d Symbol: $\geq$ The sentence is true when 5 is substituted for d.

7. Variable: y Symbol: $\neq$ The sentence is true when 10 is substituted for y.

8. Variable: k Symbol: $<$ The sentence is true when 8 is substituted for k.

9. Variable: a Symbol: $\leq$ The sentence is true when 9 is substituted for a.

State when the following equations and inequalities will be true and when they will be false.

1. $36 = 9k$

2. $67 > f - 15$

3. $\frac{v}{9} = 3$

4. $10 + b > 42$

5. $d - 8 \geq 35$

6. $32f < 64$

7. $10 - h \leq 7$

8. $42 + 8 \geq g$

9. $\frac{m}{3} = 14$

Find the solution to each equation.

1. $4^3 = y$

2. $8a = 24$

3. $32 = g - 4$

4. $56 = j + 29$

5. $\frac{48}{r} = 12$

6. $k = 15 - 9$

7. $x \cdot \frac{1}{5} = 60$

8. $m + 3.45 = 12.8$

9. $a = 1^5$

1. Find the solution to the equation below using tape diagrams. Check your answer.

$$m - 7 = 17$$

2. Find the solution of the equation below algebraically. Check your answer.

$$n + 14 = 25$$

3. Find the solution of the equation below using tape diagrams. Check your answer.

$$p + 8 = 18$$

4. Find the solution to the equation algebraically. Check your answer.

$$g - 62 = 14$$

5. Find the solution to the equation using the method of your choice. Check your answer.

$$m + 108 = 243$$

6. Identify the mistake in the problem below. Then, correct the mistake.

$$\begin{aligned} p - 21 &= 34 \\ p - 21 - 21 &= 34 - 21 \\ p &= 13 \end{aligned}$$

7. Identify the mistake in the problem below. Then, correct the mistake.

$$\begin{aligned} q + 18 &= 22 \\ q + 18 - 18 &= 22 + 18 \\ q &= 40 \end{aligned}$$

8. Match the equation with the correct solution on the right.

$r + 10 = 22$	$r = 10$
$r - 15 = 5$	$r = 20$
$r - 18 = 14$	$r = 12$
$r + 5 = 15$	$r = 32$

1. Use tape diagrams to calculate the solution of $30 = 5w$. Then, check your answer.

2. Solve $12 = \frac{x}{4}$ algebraically. Then, check your answer.

3. Use tape diagrams to calculate the solution of $\frac{y}{5} = 15$. Then, check your answer.

4. Solve $18z = 72$ algebraically. Then, check your answer.

5. Write a division equation that has a solution of 8. Prove that your solution is correct by using tape diagrams.

6. Write a multiplication equation that has a solution of 8. Solve the equation algebraically to prove that your solution is correct.

7. When solving equations algebraically, Meghan and Meredith each got a different solution. Who is correct? Why did the other person not get the correct answer?

Meghan	Meredith
$\frac{y}{2} = 4$	$\frac{y}{2} = 4$
$\frac{y}{2} \cdot 2 = 4 \cdot 2$	$\frac{y}{2} \div 2 = 4 \div 2$
$y = 8$	$y = 2$

Use tape diagrams to solve each problem.

1. Dwayne scored 55 points in the last basketball game, which is 10 points more than his previous personal best. Lebron scored 15 points more than Chris in the same game. Lebron scored the same number of points as Dwayne's previous personal best. Let d represent the number of points Dwayne scored during his previous personal best and c represent the number of Chris's points.
   a. How many points did Chris score during the game?
   b. If these are the only three players who scored, what was the team's total number of points at the end of the game?

2. The number of customers at Yummy Smoothies varies throughout the day. During the lunch rush on Saturday, there were 120 customers at Yummy Smoothies. The number of customers at Yummy Smoothies during dinner time was 10 customers fewer than the number during breakfast. The number of customers at Yummy Smoothies during lunch was 3 times more than during breakfast. How many people were at Yummy Smoothies during breakfast? How many people were at Yummy Smoothies during dinner? Let d represent the number of customers at Yummy Smoothies during dinner and b represent the number of customers at Yummy Smoothies during breakfast.

3. Karter has 24 T-shirts. Karter has 8 fewer pairs of shoes than pairs of pants. If the number of T-shirts Karter has is double the number of pants he has, how many pairs of shoes does Karter have? Let p represent the number of pants Karter has and s represent the number of pairs of shoes he has.

4. Darnell completed 35 push-ups in one minute, which is 8 more than his previous personal best. Mia completed 6 more push-ups than Katie. If Mia completed the same amount of push-ups as Darnell completed during his previous personal best, how many push-ups did Katie complete? Let d represent the number of push-ups Darnell completed during his previous personal best and k represent the number of push-ups Katie completed.

5. Justine swims freestyle at a pace of 150 laps per hour. Justine swims breaststroke 20 laps per hour slower than she swims butterfly. If Justine's freestyle speed is three times faster than her butterfly speed, how fast does she swim breaststroke? Let b represent Justine's butterfly speed in laps per hour and r represent Justine's breaststroke speed in laps per hour.

Create tables to solve the problems, and then check your answers with the word problems.

1. On average, a baby uses three times the number of large diapers as small diapers and double the number of medium diapers as small diapers.
   a. If the average baby uses $2{,}940$ diapers, sizes small, medium, and large, how many of each size would be used?
   b. Support your answer with equations.

2. Tom has three times as many pencils as pens but has a total of 100 writing utensils.
   a. How many pencils does Tom have?
   b. How many more pencils than pens does Tom have?

3. Serena's mom is planning her birthday party. She bought balloons, plates, and cups. Serena's mom bought twice as many plates as cups. The number of balloons Serena's mom bought was half the number of cups.
   a. If Serena's mom bought 84 items, how many of each item did she buy?
   b. Tammy brought 12 balloons to the party. How many total balloons were at Serena's birthday party?
   c. If half the plates and all but four cups were used during the party, how many plates and cups were used?

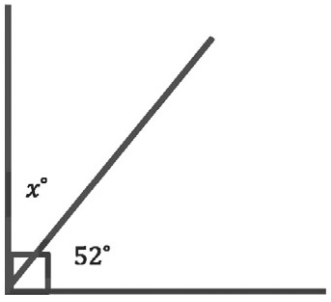
4. Elizabeth has a lot of jewelry. She has four times as many earrings as watches but half the number of necklaces as earrings. Elizabeth has the same number of necklaces as bracelets.
   a. If Elizabeth has 117 pieces of jewelry, how many earrings does she have?
   b. Support your answer with an equation.

5. Claudia was cooking breakfast for her entire family. She made double the amount of chocolate chip pancakes as she did regular pancakes. She only made half as many blueberry pancakes as she did regular pancakes. Claudia also knows her family loves sausage, so she made triple the amount of sausage as blueberry pancakes.
   a. How many of each breakfast item did Claudia make if she cooked 90 items in total?
   b. After everyone ate breakfast, there were 4 chocolate chip pancakes, 5 regular pancakes, 1 blueberry pancake, and no sausage left. How many of each item did the family eat?

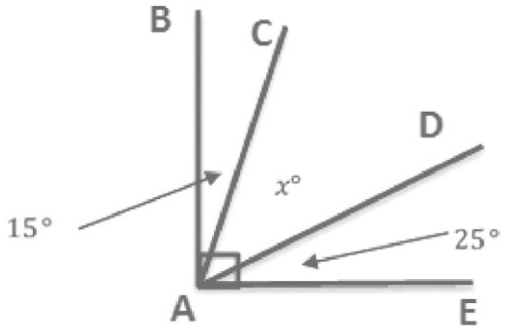
6. During a basketball game, Jeremy scored triple the number of points as Donovan. Kolby scored double the number of points as Donovan.
   a. If the three boys scored 36 points, how many points did each boy score?
   b. Support your answer with an equation.

Write and solve an equation for each problem.

1. Solve for $x°$.

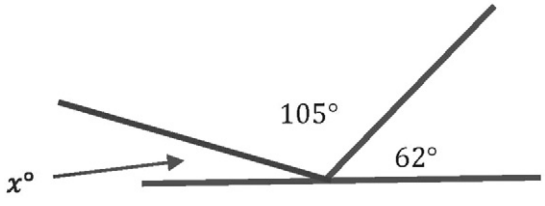


2. $\angle BAE$ measures $90°$. Solve for $x°$.

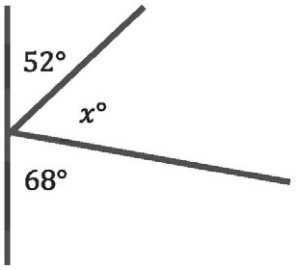


3. Thomas is putting in a tile floor. He needs to determine the angles that should be cut in the tiles to fit in the corner. The angle in the corner measures $90°$. One piece of the tile will have a measure of $24°$. Write an equation, and use it to determine the measure of the unknown angle. Let $x°$ represent the measure of the unknown angle.

4. Solve for $x°$.



5. Aram has been studying the mathematics behind pinball machines. He made the following diagram of one of his observations. Determine the measure of the missing angle.



6. The measures of two angles have a sum of $90°$. The measures of the angles are in a ratio of $2:1$. Determine the measures of both angles. Let $x°$ represent the measure of one of the unknown angles.

7. The measures of two angles have a sum of $180°$. The measures of the angles are in a ratio of $5:1$. Determine the measures of both angles. Let $x°$ represent the measure of one of the unknown angles.

1. Jaziyah sells 3 houses each month. To determine the number of houses she can sell in any given number of months, she uses the equation $t = 3m$, where t is the total number of houses sold and m is the number of months. Name the independent and dependent variables. Then, create a table to show how many houses she sells in fewer than 6 months.

2. Joshua spends 25 minutes of each day reading. Let d be the number of days that he reads, and let m represent the total minutes of reading. Determine which variable is independent and which is dependent. Then, write an equation that models the situation. Make a table showing the number of minutes spent reading over 7 days.

3. Each package of hot dog buns contains 8 buns. Let p be the number of packages of hot dog buns and b be the total number of buns. Determine which variable is independent and which is dependent. Then, write an equation that models the situation, and make a table showing the number of hot dog buns in 3 to 8 packages.

4. Emma was given 5 seashells. Each week she collected 3 more. Let w be the number of weeks Emma collects seashells and s be the number of seashells she has total. Which variable is independent, and which is dependent? Write an equation to model the relationship, and make a table to show how many seashells she has from week 4 to week 10.

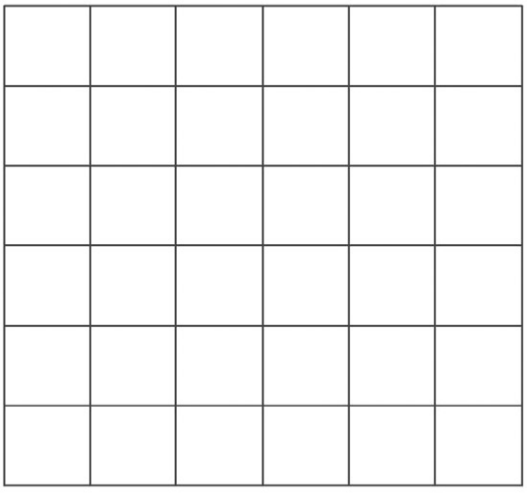
5. Emilia is shopping for fresh produce at a farmers' market. She bought a watermelon for $\$5$, and she also wants to buy peppers. Each pepper is $\$0.75$. Let t represent the total cost of the produce and n be the number of peppers bought. Determine which variable is independent and which is dependent, and write an equation that models the situation. Then, make a table to show the cost for 1 to 5 peppers.

6. A taxicab service charges a flat fee of $\$7$ plus an additional $\$1.25$ per mile driven. Show the relationship between the total cost and the number of miles driven. Which variable is independent, and which is dependent? Write an equation to model the relationship, and make a table to show the cost of 4 to 10 miles.

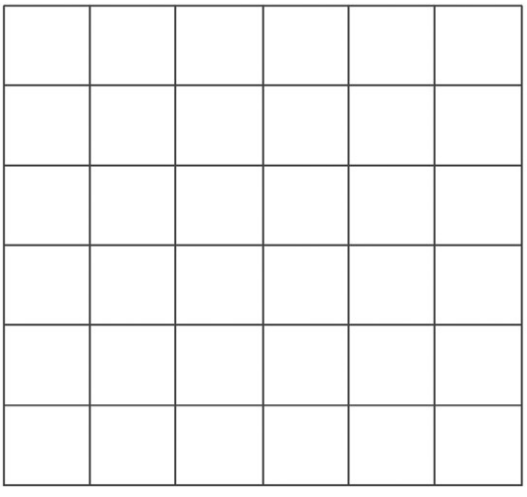
1. Caleb started saving money in a cookie jar. He started with $\$25$. He adds $\$10$ to the cookie jar each week. Write an equation where w is the number of weeks Caleb saves his money and t is the total amount in dollars in the cookie jar. Determine which variable is the independent variable and which is the dependent variable. Then, graph the total amount in the cookie jar for w being less than 6 weeks.

2. Kevin is taking a taxi from the airport to his home. There is a $\$6$ flat fee for riding in the taxi. In addition, Kevin must also pay $\$1$ per mile. Write an equation where m is the number of miles and t is the total cost in dollars of the taxi ride. Determine which variable is independent and which is dependent. Then, graph the total cost for m being less than 6 miles.

3. Anna started with $\$10$. She saved an additional $\$5$ each week. Write an equation that can be used to determine the total amount saved in dollars, t, after a given number of weeks, w. Determine which variable is independent and which is dependent. Then, graph the total amount saved for the first 8 weeks.



4. Aliyah is purchasing produce at the farmers' market. She plans to buy $\$10$ worth of potatoes and some apples. The apples cost $\$1.50$ per pound. Write an equation to show the total cost of the produce, where T is the total cost, in dollars, and a is the number of pounds of apples. Determine which variable is dependent and which is independent. Then, graph the equation on the coordinate plane.



Choose the number(s), if any, that make the equation or inequality true from the following set of numbers: $\{0, 3, 4, 5, 9, 13, 18, 24\}$.

1. $h - 8 = 5$

2. $h - 8 < 5$

3. $4g = 36$

4. $4g \geq 36$

5. $\frac{1}{4} y = 7$

6. $\frac{1}{4} y > 7$

7. $m - 3 = 10$

8. $m - 3 \leq 10$

Write and graph an inequality for each problem.

1. At least 13

2. Less than 7

3. Chad will need at least 24 minutes to complete the 5K race. However, he wants to finish in under 30 minutes.

4. Eva saves $60 each week. Since she needs to save at least $2,400 to go on a trip to Europe, she will need to save for at least 40 weeks.

5. Clara has $100. She wants to buy 4 pairs of the same pants. Due to tax, Clara can afford pants that are less than $25.

6. A gym charges $30 per month plus $4 extra to swim in the pool for an hour. Because a member has just $50 to spend at the gym each month, the member can swim at most 5 hours.

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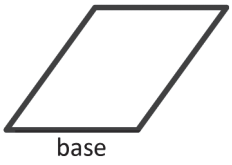
Draw and label the height of each parallelogram.

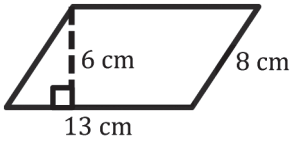
1.

2.

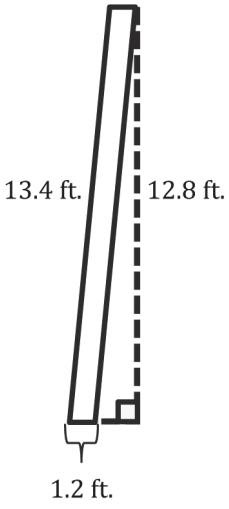


Calculate the area of each parallelogram. The figures are not drawn to scale.

3.



4.



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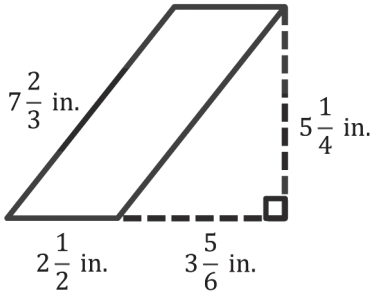

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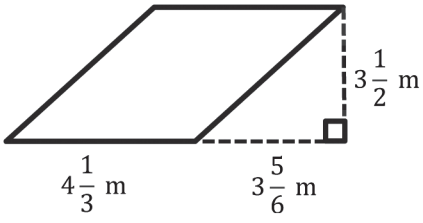
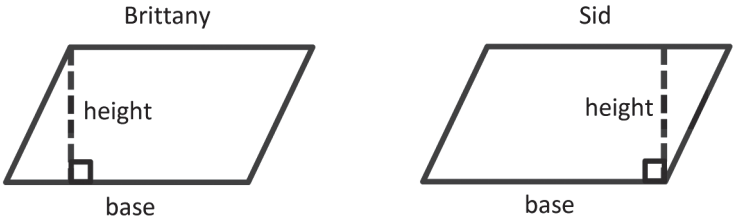
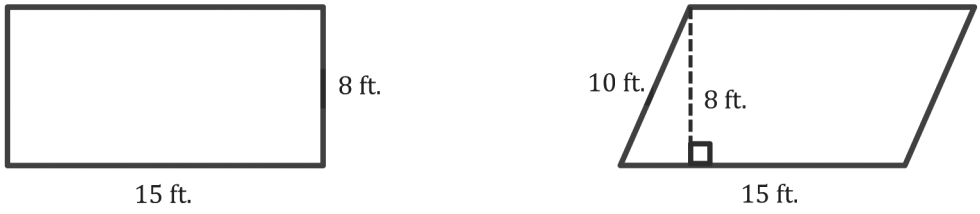


7. Brittany and Sid were both asked to draw the height of a parallelogram. Their answers are below.



Are both Brittany and Sid correct? If not, who is correct? Explain your answer.

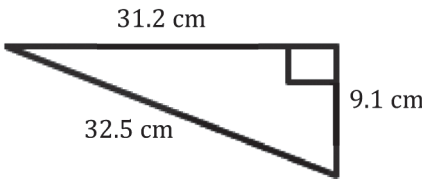
8. Do the rectangle and parallelogram below have the same area? Explain why or why not.



9. A parallelogram has an area of $20.3\ \text{cm}^2$ and a base of $2.5\ \text{cm}$. Write an equation that relates the area to the base and height, h. Solve the equation to determine the height of the parallelogram.

Calculate the area of each right triangle below. Note that the figures are not drawn to scale.

1.



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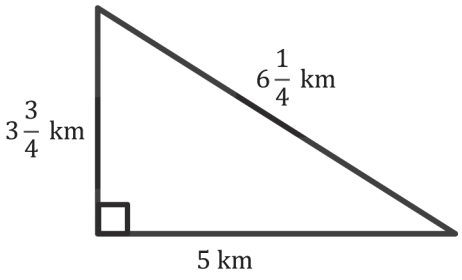
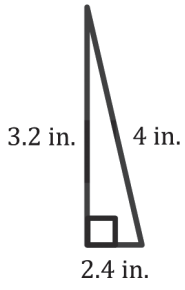


3.



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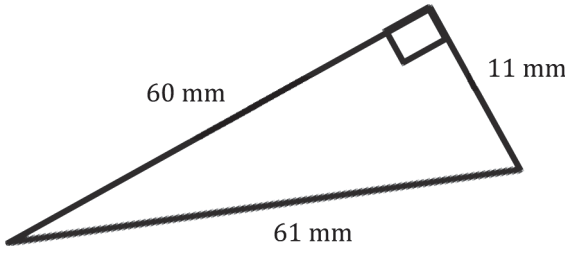
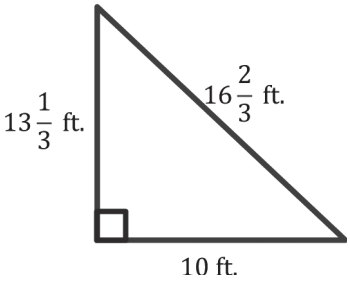
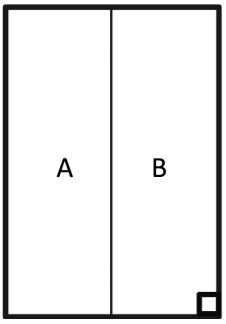
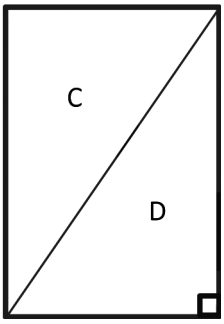


5.



6. Elania has two congruent rugs at her house. She cut one vertically down the middle, and she cut diagonally through the other one.





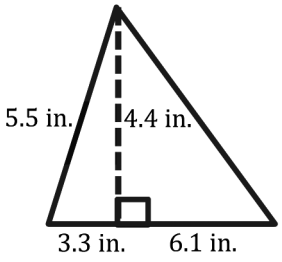
After making the cuts, which rug (labeled A, B, C, or D) has the larger area? Explain.

7. Give the dimensions of a right triangle and a parallelogram with the same area. Explain how you know.

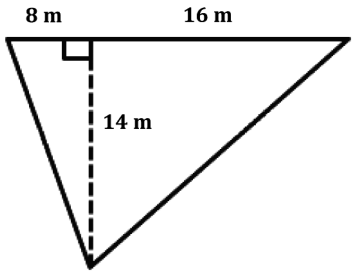
8. If the area of a right triangle is $\frac{9}{16}$ sq. ft. and the height is $\frac{3}{4}$ ft., write an equation that relates the area to the base, b, and the height. Solve the equation to determine the base.

Calculate the area of each shape below. Figures are not drawn to scale.

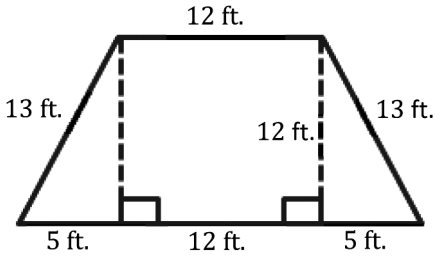
1.



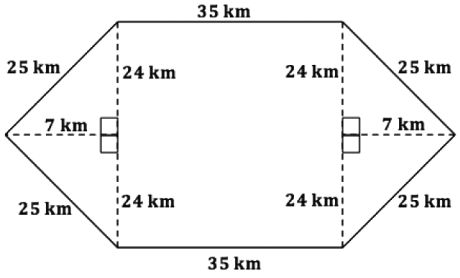
2.



3.



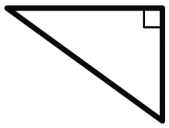
4.



5. Immanuel is building a fence to make an enclosed play area for his dog. The enclosed area will be in the shape of a triangle with a base of 48 m. and an altitude of 32 m. How much space does the dog have to play?

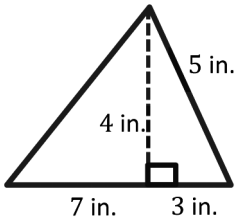
6. Chauncey is building a storage bench for his son's playroom. The storage bench will fit into the corner and against two walls to form a triangle. Chauncey wants to buy a triangular shaped cover for the bench.

   If the storage bench is $2\frac{1}{2}$ ft. along one wall and $4\frac{1}{4}$ ft. along the other wall, how big will the cover have to be to cover the entire bench?



Note: Figure is not to scale.

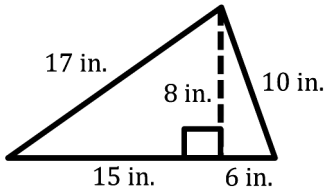
7. Examine the triangle to the right.
   a. Write an expression to show how you would calculate the area.
   b. Identify each part of your expression as it relates to the triangle.



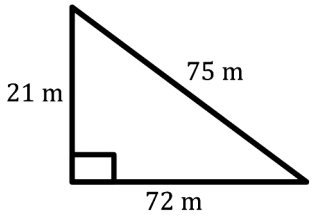
8. The floor of a triangular room has an area of $32\frac{1}{2}$ sq. m. If the triangle's altitude is $7\frac{1}{2}$ m, write an equation to determine the length of the base, b, in meters. Then solve the equation.

Calculate the area of each figure below. Figures are not drawn to scale.

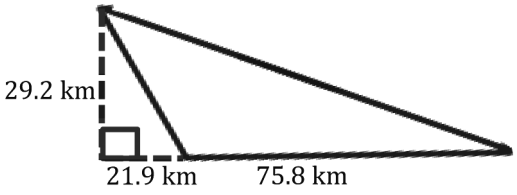
1.



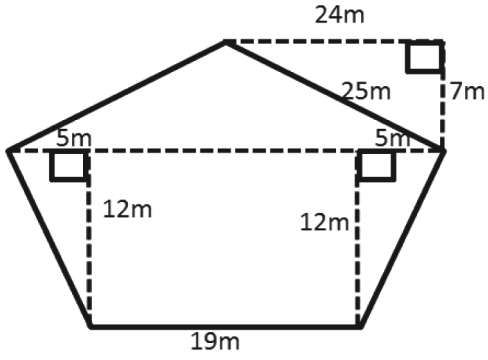
2.



3.

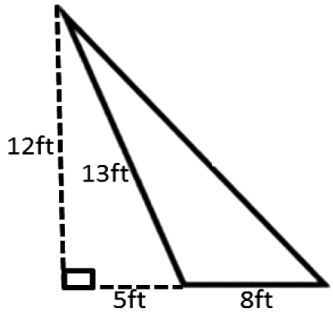


4.

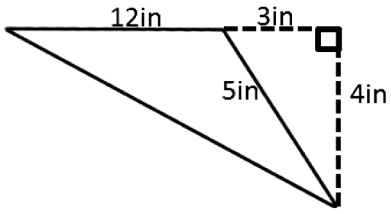


5. The Andersons are going on a long sailing trip during the summer. However, one of the sails on their sailboat ripped, and they have to replace it. The sail is pictured below.

   If the sailboat sails are on sale for $2 per square foot, how much will the new sail cost?



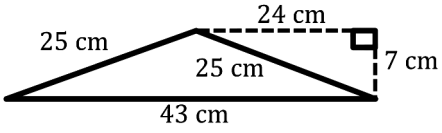
6. Darnell and Donovan are both trying to calculate the area of an obtuse triangle. Examine their calculations below.



Darnell's Work	Donovan's Work
$\text{⌇} = \frac{1}{2} \times 3 \text{ in.} \times 4 \text{ in.}$ $\text{⌇} = 6 \text{ in}^2$	$\text{⌇} = \frac{1}{2} \times 12 \text{ in.} \times 4 \text{ in.}$ $\text{⌇} = 24 \text{ in}^2$

Which student calculated the area correctly? Explain why the other student is not correct.

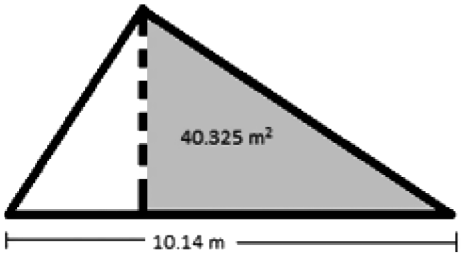
7. Russell calculated the area of the triangle below. His work is shown.



$$\text{⌇} = \frac{1}{2} \times 43 \text{ cm} \times 7 \text{ cm}$$
$$\text{⌇} = 150.5 \text{ cm}^2$$

Although Russell was told his work is correct, he had a hard time explaining why it is correct. Help Russell explain why his calculations are correct.

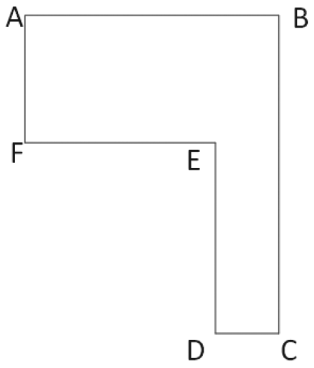
8. The larger triangle below has a base of 10.14 m; the gray triangle has an area of 40.325 m^2.



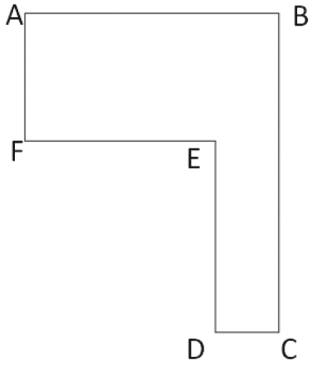
a. Determine the area of the larger triangle if it has a height of 12.2 m.

b. Let ⌇ be the area of the unshaded (white) triangle in square meters. Write and solve an equation to determine the value of ⌇, using the areas of the larger triangle and the gray triangle.

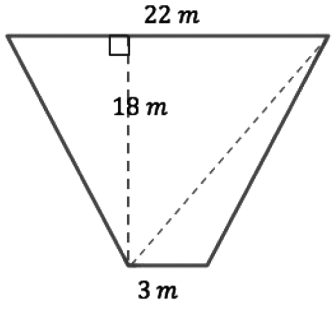
1. If $AB = 20$ units, $FE = 12$ units, $AF = 9$ units, and $DE = 12$ units, find the length of the other two sides. Then, find the area of the irregular polygon.



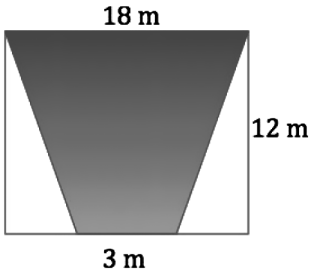
2. If $DC = 1.9$ cm, $FE = 5.6$ cm, $AF = 4.8$ cm, and $BC = 10.9$ cm, find the length of the other two sides. Then, find the area of the irregular polygon.



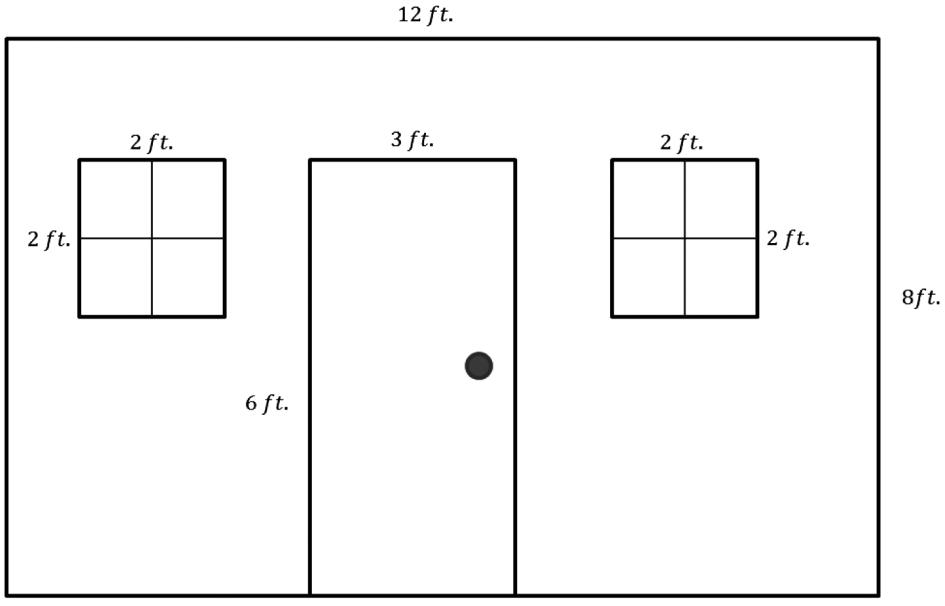
3. Determine the area of the trapezoid below. The trapezoid is not drawn to scale.



4. Determine the area of the shaded isosceles trapezoid below. The image is not drawn to scale.



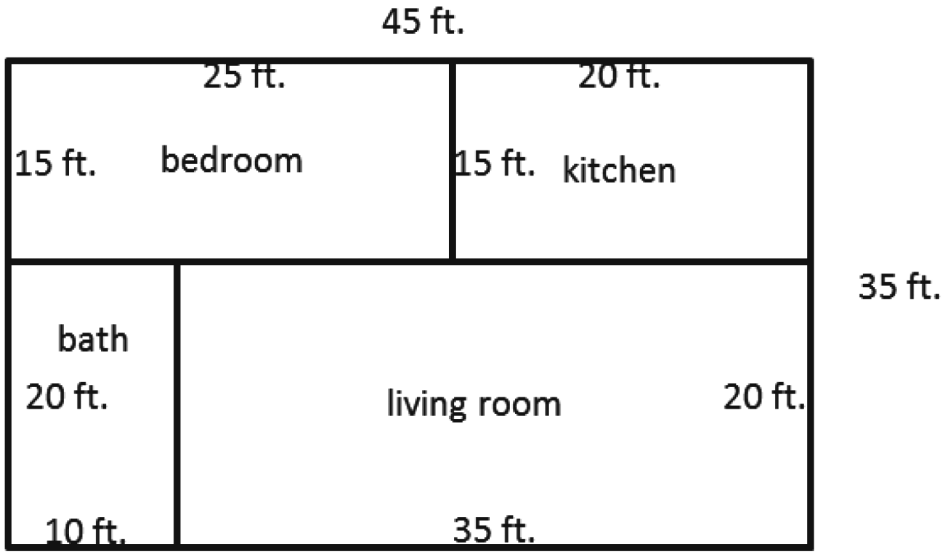
5. Here is a sketch of a wall that needs to be painted:



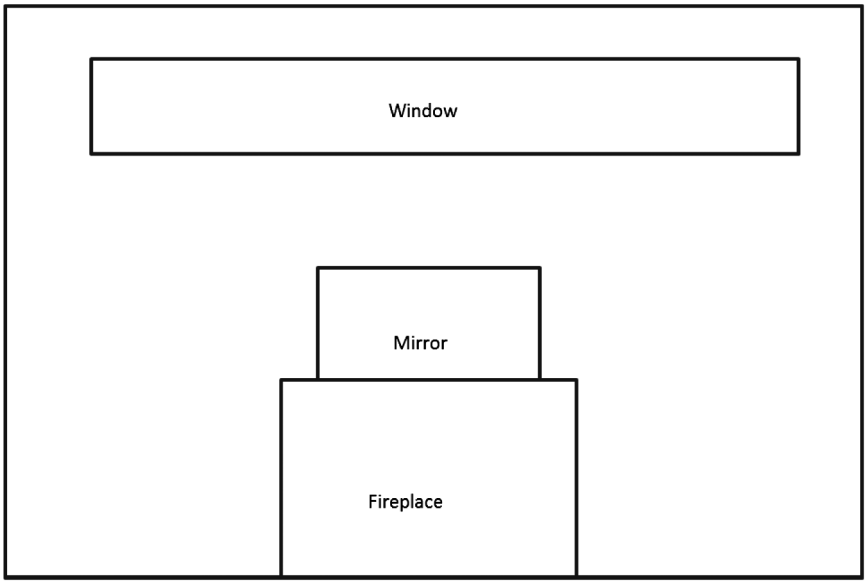
a. The windows and door will not be painted. Calculate the area of the wall that will be painted.

b. If a quart of Extra-Thick Gooey Sparkle paint covers 30 ft^2, how many quarts must be purchased for the painting job?

6. The figure below shows a floor plan of a new apartment. New carpeting has been ordered, which will cover the living room and bedroom but not the kitchen or bathroom. Determine the carpeted area by composing or decomposing in two different ways, and then explain why they are equivalent.



1. Below is a drawing of a wall that is to be covered with either wallpaper or paint. The wall is 8 ft. high and 16 ft. wide. The window, mirror, and fireplace are not to be painted or papered. The window measures 18 in. wide and 14 ft. high. The fireplace is 5 ft. wide and 3 ft. high, while the mirror above the fireplace is 4 ft. wide and 2 ft. high. (Note: this drawing is not to scale.)

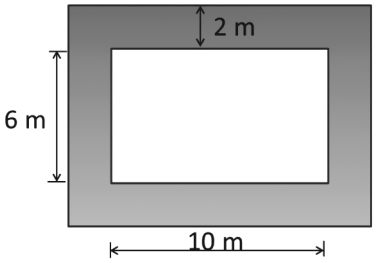


   a. How many square feet of wallpaper are needed to cover the wall?
   b. The wallpaper is sold in rolls that are 18 in. wide and 33 ft. long. Rolls of solid color wallpaper will be used, so patterns do not have to match up.
      i. What is the area of one roll of wallpaper?
      ii. How many rolls would be needed to cover the wall?
   c. This week, the rolls of wallpaper are on sale for $\$11.99$/roll. Find the cost of covering the wall with wallpaper.
   d. A gallon of special textured paint covers 200 ft^2 and is on sale for $\$22.99$/gallon. The wall needs to be painted twice (the wall needs two coats of paint). Find the cost of using paint to cover the wall.

2. A classroom has a length of 30 ft. and a width of 20 ft. The flooring is to be replaced by tiles. If each tile has a length of 36 in. and a width of 24 in., how many tiles are needed to cover the classroom floor?

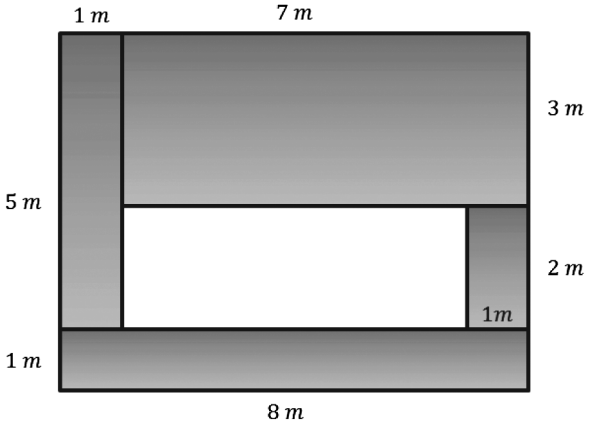
3. Challenge: Assume that the tiles from Problem 2 are unavailable. Another design is available, but the tiles are square, 18 in. on a side. If these are to be installed, how many must be ordered?

4. A rectangular flower bed measures 10 m by 6 m. It has a path 2 m wide around it. Find the area of the path.



5. A diagram of Tracy's deck is shown below, shaded blue. He wants to cover the missing portion of his deck with soil in order to grow a garden.

   a. Find the area of the missing portion of the deck. Write the expression and evaluate it.

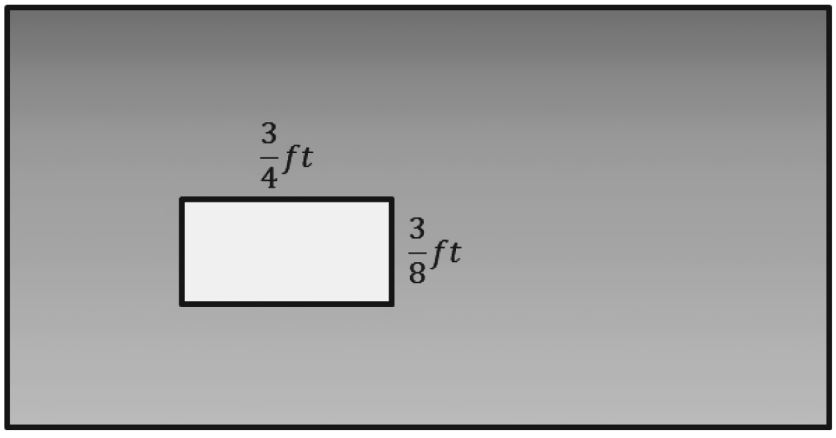


   b. Find the missing portion of the deck using a different method. Write the expression and evaluate it.

   c. Write two equivalent expressions that can be used to determine the area of the missing portion of the deck.

   d. Explain how each expression demonstrates a different understanding of the diagram.

6. The entire large rectangle below has an area of $3\frac{1}{2}$ ft^2. If the dimensions of the white rectangle are as shown below, write and solve an equation to find the area, A, of the shaded region.



1. Given the pairs of points, determine whether the segment that joins them is horizontal, vertical, or neither.

   a. $X(3, 5)$ and $Y(-2, 5)$ _____

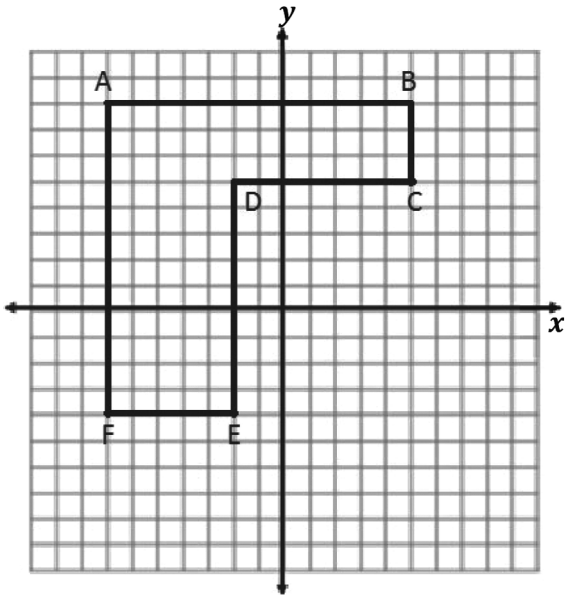
   b. $M(-4, 9)$ and $N(4, -9)$ _____

   c. $E(-7, 1)$ and $F(-7, 4)$ _____

2. Complete the table using absolute value to determine the lengths of the line segments.

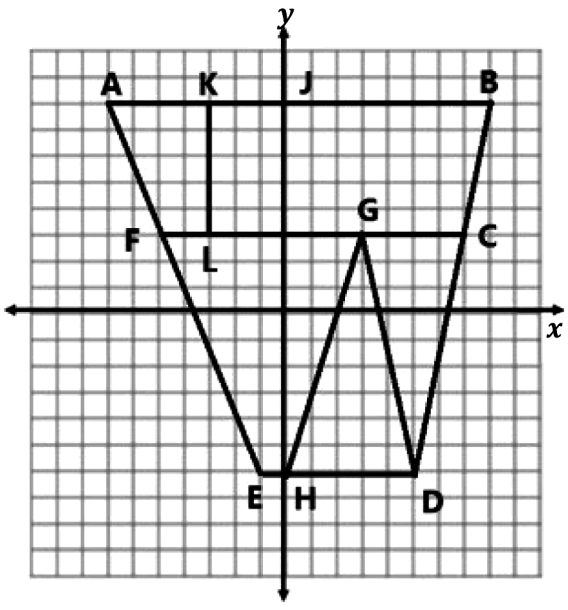
Line Segment	Point	Point	Distance	Proof
$\overline{AB}$	$(-3, 5)$	$(7, 5)$		
$\overline{CD}$	$(1, -3)$	$(-6, -3)$		
$\overline{EF}$	$(2, -9)$	$(2, -3)$		
$\overline{GH}$	$(6, 1)$	$(6, 16)$		
$\overline{JK}$	$(-3, 0)$	$(-3, 12)$		

3. Complete the table using the diagram and absolute value to determine the lengths of the line segments.



Line Segment	Point	Point	Distance	Proof
$\overline{AB}$				
$\overline{BC}$				
$\overline{CD}$				
$\overline{DE}$				
$\overline{EF}$				
$\overline{FA}$				

4. Complete the table using the diagram and absolute value to determine the lengths of the line segments.



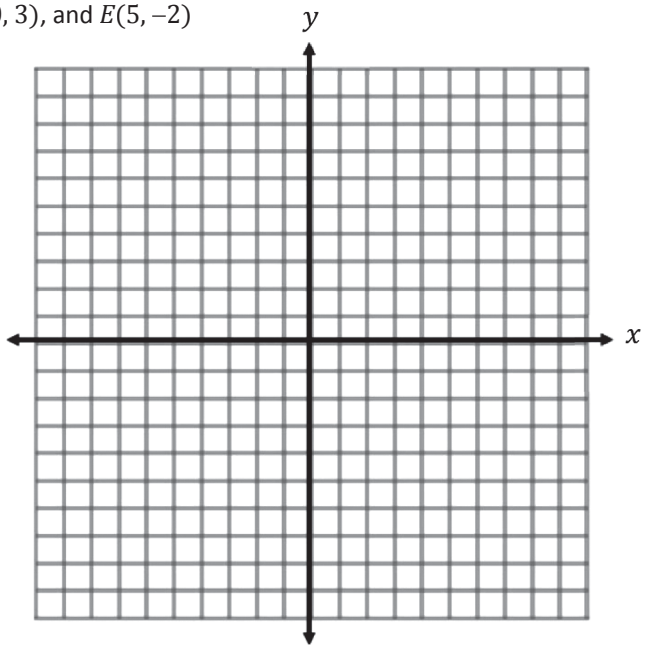
Line Segment	Point	Point	Distance	Proof
$\overline{AB}$				
$\overline{CG}$				
$\overline{CF}$				
$\overline{GF}$				
$\overline{DH}$				
$\overline{DE}$				
$\overline{HJ}$				
$\overline{KL}$				

5. Name two points in different quadrants that form a vertical line segment that is 8 units in length.

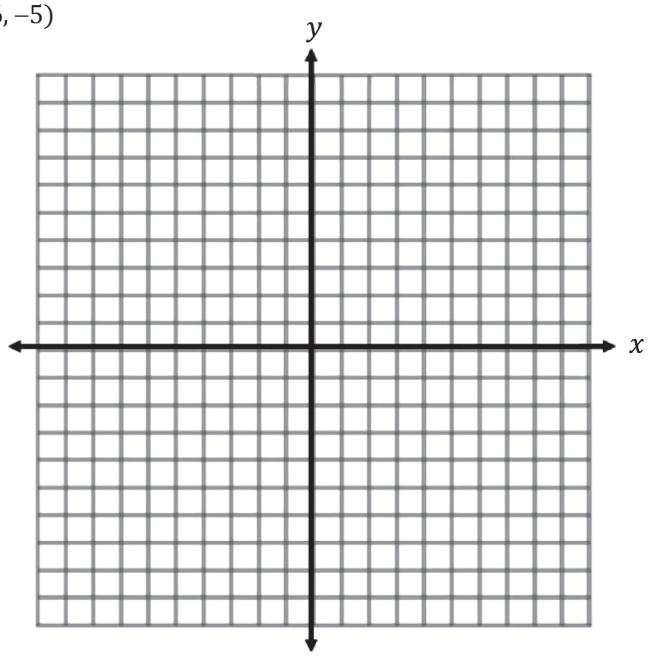
6. Name two points in the same quadrant that form a horizontal line segment that is 5 units in length.

Plot the points for each shape, determine the area of the polygon, and then write an expression that could be used to determine the area of the figure. Explain how each part of the expression corresponds to the situation.

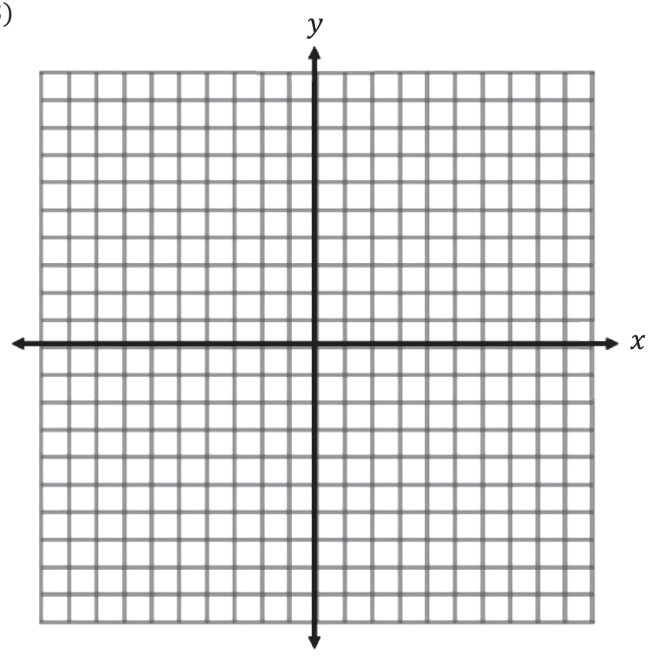
1. $A(1, 3)$, $B(2, 8)$, $C(8, 8)$, $D(10, 3)$, and $E(5, -2)$



2. $X(-10, 2)$, $Y(-3, 6)$, and $Z(-6, -5)$



3. $E(5, 7)$, $F(9, -5)$, and $G(1, -3)$

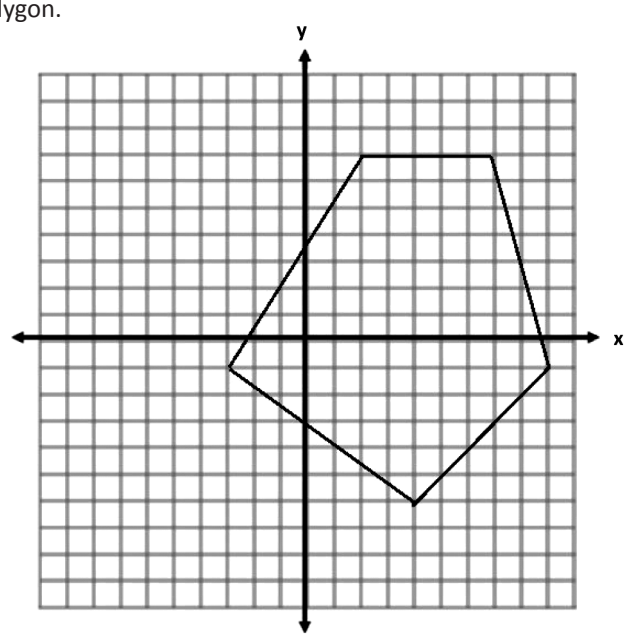


4. Find the area of the triangle in Problem 3 using a different method. Then, compare the expressions that can be used for both solutions in Problems 3 and 4.

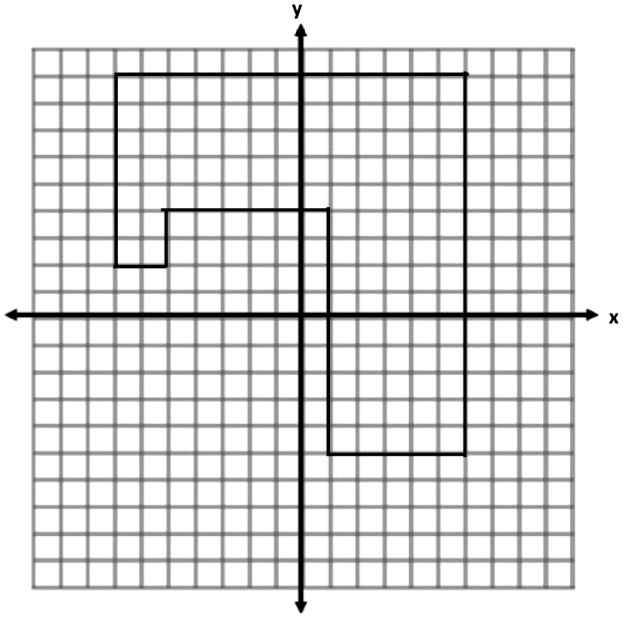
5. Two vertices of a rectangle are $(8, -5)$ and $(8, 7)$. If the area of the rectangle is 72 square units, name the possible location of the other two vertices.

6. A triangle with two vertices located at $(5, -8)$ and $(5, 4)$ has an area of 48 square units. Determine one possible location of the other vertex.

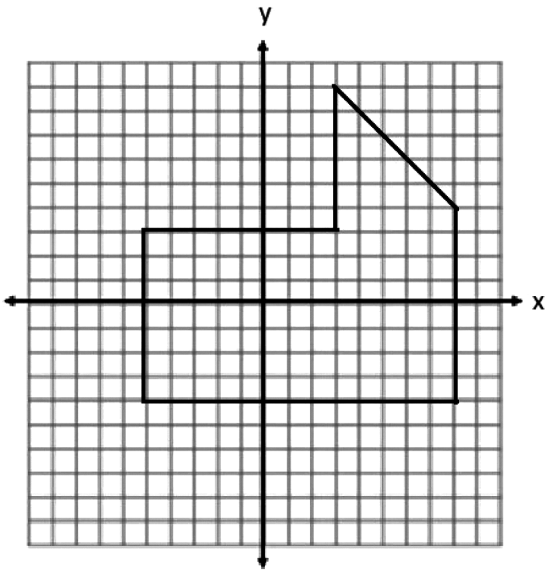
1. Determine the area of the polygon.



2. Determine the area and perimeter of the polygon.

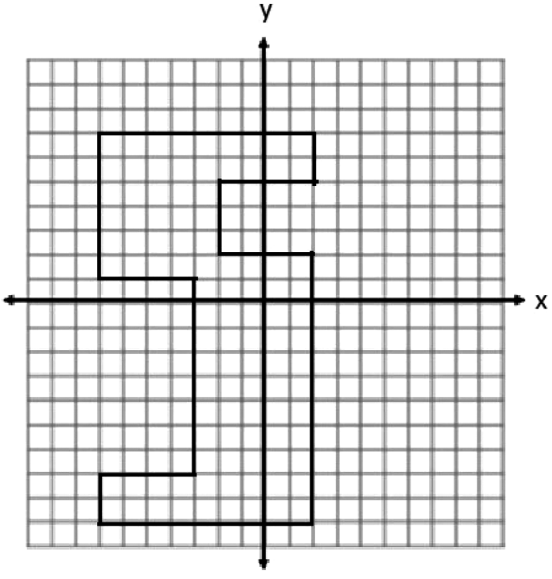


3. Determine the area of the polygon. Then, write an expression that could be used to determine the area.



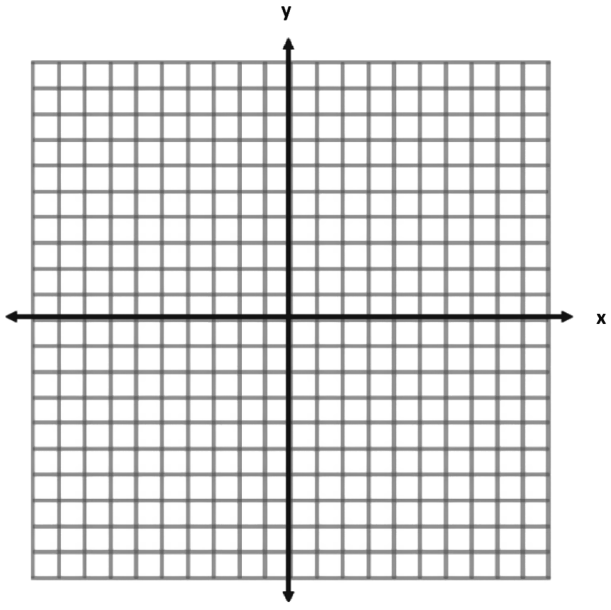
4. If the length of each square was worth 2 instead of 1, how would the area in Problem 3 change? How would your expression change to represent this area?

5. Determine the area of the polygon. Then, write an expression that represents the area.

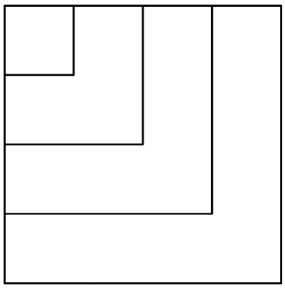


6. Describe another method you could use to find the area of the polygon in Problem 5. Then, state how the expression for the area would be different than the expression you wrote.

7. Write one of the letters from your name using rectangles on the coordinate plane. Then, determine the area and perimeter. (For help see Exercise 2(b). This irregular polygon looks sort of like a T.)



1. How is the length of the side of a square related to its area and perimeter? The diagram below shows the first four squares stacked on top of each other with their upper left-hand corners lined up. The length of one side of the smallest square is 1 foot.



a. Complete this chart calculating area and perimeter for each square.

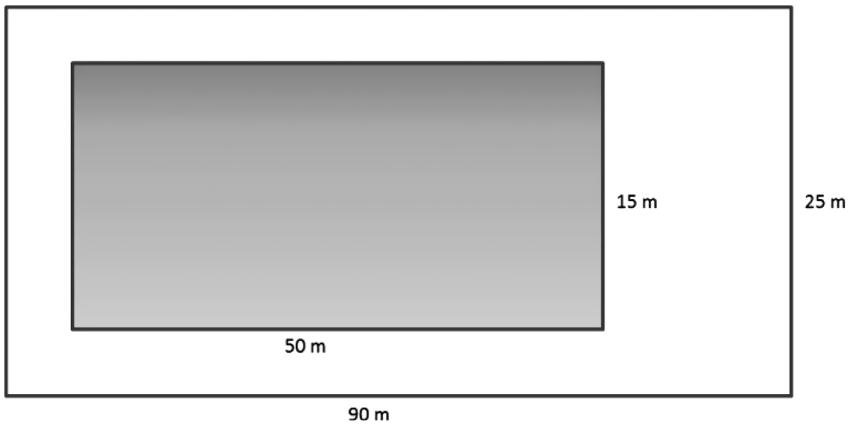
Side Length (in feet)	Expression Showing the Area	Area (in square feet)	Expression Showing the Perimeter	Perimeter (in feet)
1	1×1	1	1×4	4
2				
3				
4				
5				
6				
7				
8				
9				
10				
n				

b. In a square, which numerical value is greater, the area or the perimeter?

c. When is the numerical value of a square's area (in square units) equal to its perimeter (in units)?

d. Why is this true?

2. This drawing shows a school pool. The walkway around the pool needs special nonskid strips installed but only at the edge of the pool and the outer edges of the walkway.



   a. Find the length of nonskid strips that is needed for the job.

   b. The nonskid strips are sold only in rolls of 50 m. How many rolls need to be purchased for the job?

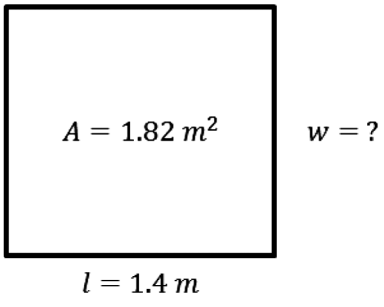
3. A homeowner called in a painter to paint the walls and ceiling of one bedroom. His bedroom is 18 ft. long, 12 ft. wide, and 8 ft. high. The room has two doors, each 3 ft. by 7 ft., and three windows each 3 ft. by 5 ft. The doors and windows will not be painted. A gallon of paint can cover 300 ft^2. A hired painter claims he needs a minimum of 4 gallons. Show that his estimate is too high.

4. Theresa won a gardening contest and was awarded a roll of deer-proof fencing. The fencing is 36 feet long. She and her husband, John, discuss how to best use the fencing to make a rectangular garden. They agree that they should only use whole numbers of feet for the length and width of the garden.

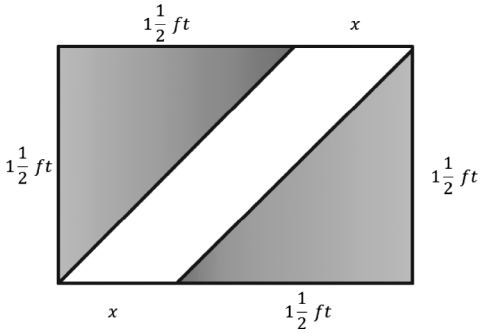
   a. What are all of the possible dimensions of the garden?

   b. Which plan yields the maximum area for the garden? Which plan yields the minimum area?

5. Write and then solve the equation to find the missing value below.



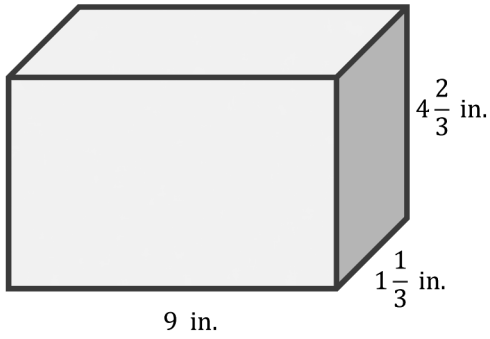
6. Challenge: This is a drawing of the flag of the Republic of the Congo. The area of this flag is $3\frac{3}{4}$ ft^2.



a. Using the area formula, tell how you would determine the value of the base. This figure is not drawn to scale.

b. Using what you found in part (a), determine the missing value of the base.

1. Answer the following questions using this rectangular prism:



   a. What is the volume of the prism?

   b. Linda fills the rectangular prism with cubes that have side lengths of $\frac{1}{3}$ in. How many cubes does she need to fill the rectangular prism?

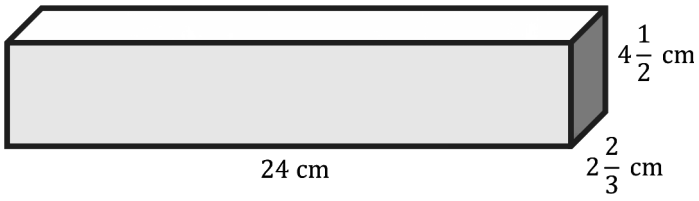
   c. How is the number of cubes related to the volume?

   d. Why is the number of cubes needed different from the volume?

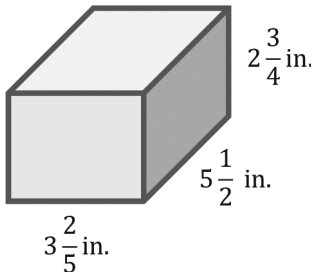
   e. Should Linda try to fill this rectangular prism with cubes that are $\frac{1}{2}$ in. long on each side? Why or why not?

2. Calculate the volume of the following prisms.

   a.



   b.



3. A rectangular prism with a volume of 12 cubic units is filled with cubes twice: once with cubes with $\frac{1}{2}$-unit side lengths and once with cubes with $\frac{1}{3}$-unit side lengths.

   a. How many more of the cubes with $\frac{1}{3}$-unit side lengths than cubes with $\frac{1}{2}$-unit side lengths are needed to fill the prism?

   b. Finally, the prism is filled with cubes whose side lengths are $\frac{1}{4}$ unit. How many $\frac{1}{4}$-unit cubes would it take to fill the prism?

4. A toy company is packaging its toys to be shipped. Each toy is placed inside a cube-shaped box with side lengths of $3\frac{1}{2}$ in. These smaller boxes are then packed into a larger box with dimensions of $14 \text{ in.} \times 7 \text{ in.} \times 3\frac{1}{2} \text{ in.}$

   a. What is the greatest number of toy boxes that can be packed into the larger box for shipping?

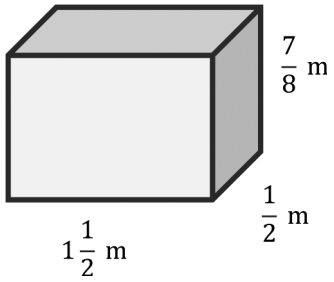
   b. Use the number of toy boxes that can be shipped in the large box to determine the volume of the shipping box.

5. A rectangular prism has a volume of 34.224 cubic meters. The height of the box is 3.1 meters, and the length is 2.4 meters.

   a. Write an equation that relates the volume to the length, width, and height. Let w represent the width, in meters.

   b. Solve the equation.

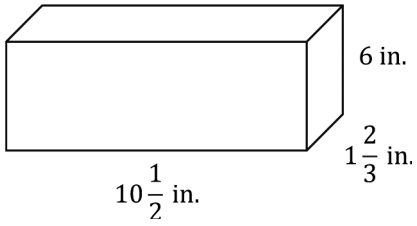
1. Determine the volume of the rectangular prism.



2. The area of the base of a rectangular prism is $4\frac{3}{4}$ ft^2, and the height is $2\frac{1}{3}$ ft. Determine the volume of the rectangular prism.

3. The length of a rectangular prism is $3\frac{1}{2}$ times as long as the width. The height is $\frac{1}{4}$ of the width. The width is 3 cm. Determine the volume.

4.

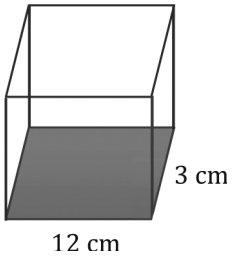


   a. Write numerical expressions to represent the volume in two different ways, and explain what each reveals.
   b. Determine the volume of the rectangular prism.

5. An aquarium in the shape of a rectangular prism has the following dimensions: length $= 50$ cm, width $= 25\frac{1}{2}$ cm, and height $= 30\frac{1}{2}$ cm.
   a. Write numerical expressions to represent the volume in two different ways, and explain what each reveals.
   b. Determine the volume of the rectangular prism.

6. The area of the base in this rectangular prism is fixed at $36\ \text{cm}^2$. As the height of the rectangular prism changes, the volume will also change as a result.

   a. Complete the table of values to determine the various heights and volumes.



Height of Prism (in centimeters)	Volume of Prism (in cubic centimeters)
2	72
3	108
	144
	180
6	
7	
	288

   b. Write an equation to represent the relationship in the table. Be sure to define the variables used in the equation.

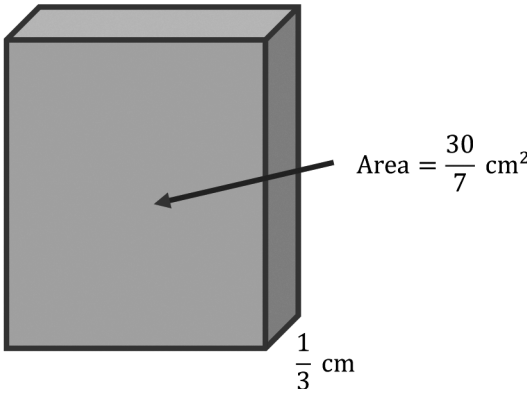
   c. What is the unit rate for this proportional relationship? What does it mean in this situation?

7. The volume of a rectangular prism is $16.328\ \text{cm}^3$. The height is $3.14\ \text{cm}$.

   a. Let B represent the area of the base of the rectangular prism. Write an equation that relates the volume, the area of the base, and the height.

   b. Solve the equation for B.

1. Determine the volume of the rectangular prism.



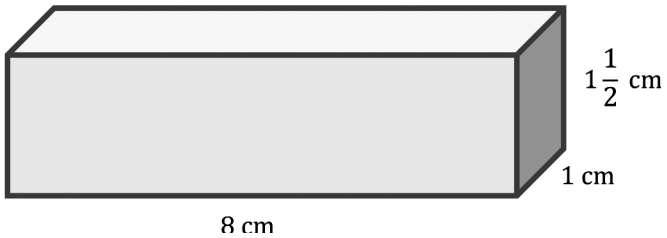
2. Determine the volume of the rectangular prism in Problem 1 if the height is quadrupled (multiplied by four). Then, determine the relationship between the volumes in Problem 1 and this prism.

3. The area of the base of a rectangular prism can be represented by B, and the height is represented by h.
   a. Write an equation that represents the volume of the prism.
   b. If the area of the base is doubled, write an equation that represents the volume of the prism.
   c. If the height of the prism is doubled, write an equation that represents the volume of the prism.
   d. Compare the volume in parts (b) and (c). What do you notice about the volumes?
   e. Write an expression for the volume of the prism if both the height and the area of the base are doubled.

4. Determine the volume of a cube with a side length of $5\frac{1}{3}$ in.

5. Use the information in Problem 4 to answer the following:
   a. Determine the volume of the cube in Problem 4 if all of the side lengths are cut in half.
   b. How could you determine the volume of the cube with the side lengths cut in half using the volume in Problem 4?

6. Use the rectangular prism to answer the following questions.



a. Complete the table.

Length of Prism	Volume of Prism
$l = 8$ cm	
$\frac{1}{2}l =$	
$\frac{1}{3}l =$	
$\frac{1}{4}l =$	
$2l =$	
$3l =$	
$4l =$	

b. How did the volume change when the length was one-third as long?

c. How did the volume change when the length was tripled?

d. What conclusion can you make about the relationship between the volume and the length?

7. The sum of the volumes of two rectangular prisms, Box A and Box B, are 14.325 cm^3. Box A has a volume of 5.61 cm^3.

a. Let B represent the volume of Box B in cubic centimeters. Write an equation that could be used to determine the volume of Box B.

b. Solve the equation to determine the volume of Box B.

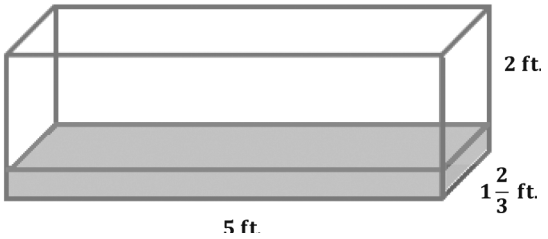
c. If the area of the base of Box B is 1.5 cm^2, write an equation that could be used to determine the height of Box B. Let h represent the height of Box B in centimeters.

d. Solve the equation to determine the height of Box B.

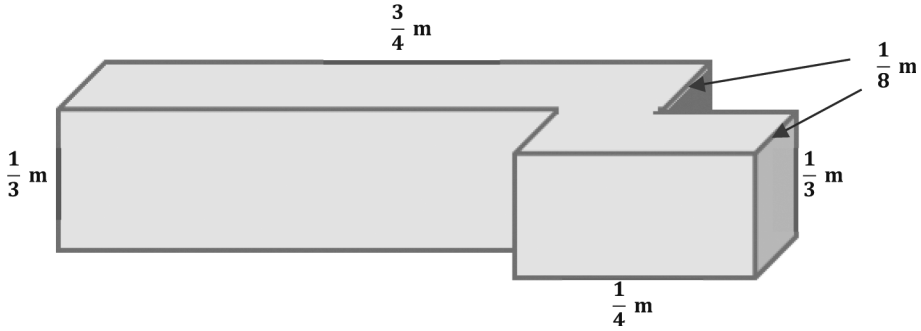
1. The volume of a rectangular prism is $\frac{21}{12}$ ft^3, and the height of the prism is $\frac{3}{4}$ ft. Determine the area of the base.

2. The volume of a rectangular prism is $\frac{10}{21}$ ft^3. The area of the base is $\frac{2}{3}$ ft^2 . Determine the height of the rectangular prism·

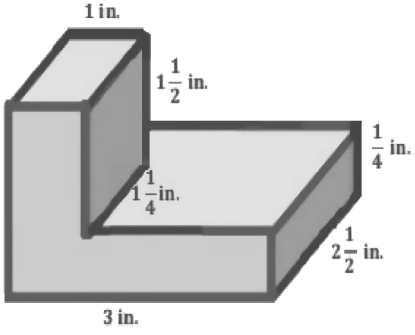
3. Determine the volume of the space in the tank that still needs to be filled with water if the water is $\frac{1}{3}$ ft. deep.



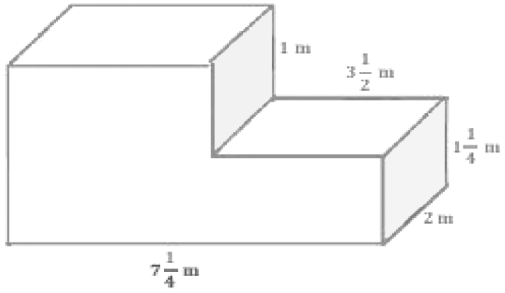
4. Determine the volume of the composite figure.



5. Determine the volume of the composite figure.



6.

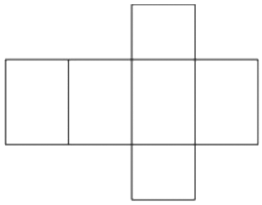


a. Write an equation to represent the volume of the composite figure.

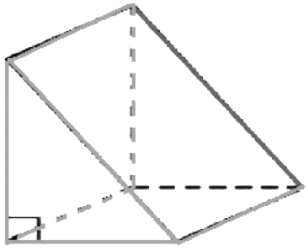
b. Use your equation to calculate the volume of the composite figure.

1. Match the following nets to the picture of its solid. Then, write the name of the solid.

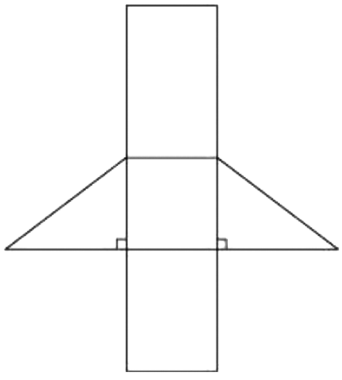
a.



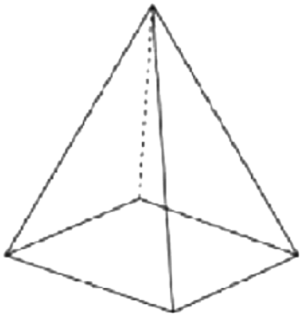
d.



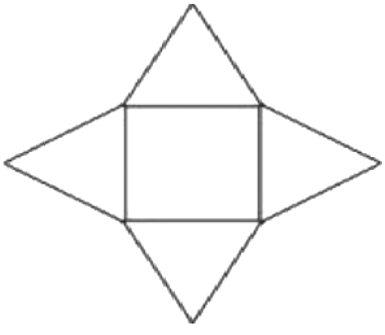
b.



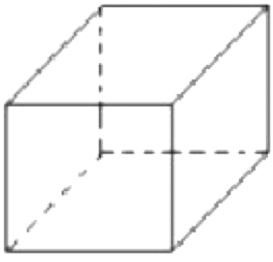
e.



c.



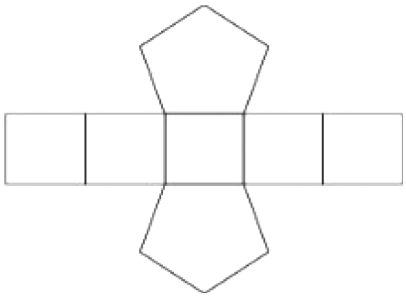
f.



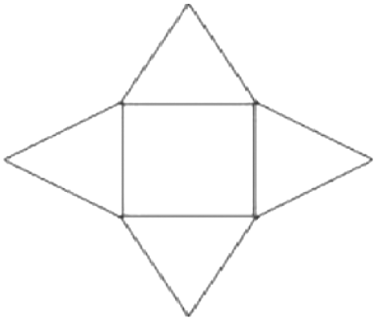
2. Sketch a net that can fold into a cube.

3. Below are the nets for a variety of prisms and pyramids. Classify the solids as prisms or pyramids, and identify the shape of the base(s). Then, write the name of the solid.

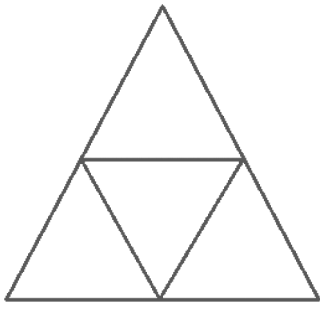
a.



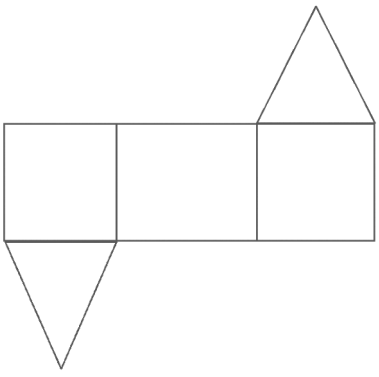
b.



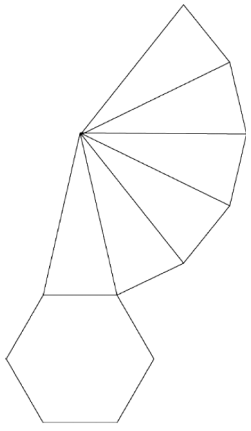
c.



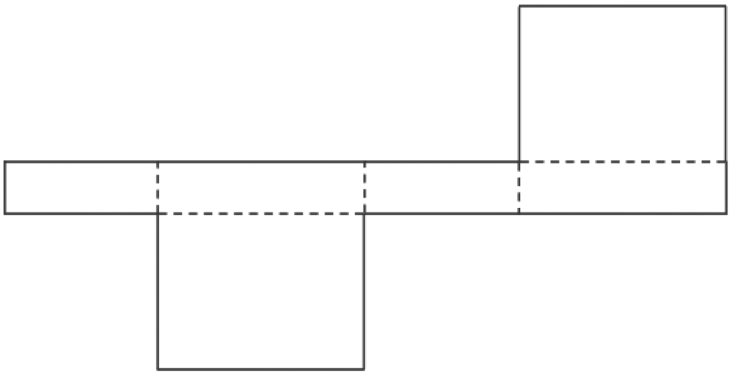
d.



e.

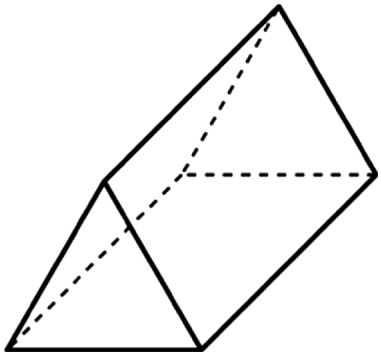


f.



1. Sketch and label the net of the following solid figures, and label the edge lengths.
   a. A cereal box that measures 13 inches high, 7 inches long, and 2 inches wide
   b. A cubic gift box that measures 8 cm on each edge
   c. Challenge: Write a numerical expression for the total area of the net in part (b). Tell what each of the terms in your expression means.

2. This tent is shaped like a triangular prism. It has equilateral bases that measure 5 feet on each side. The tent is 8 feet long. Sketch the net of the tent, and label the edge lengths.

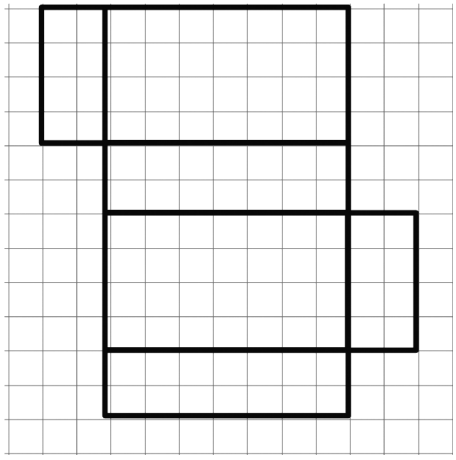


3. The base of a table is shaped like a square pyramid. The pyramid has equilateral faces that measure 25 inches on each side. The base is 25 inches long. Sketch the net of the table base, and label the edge lengths.

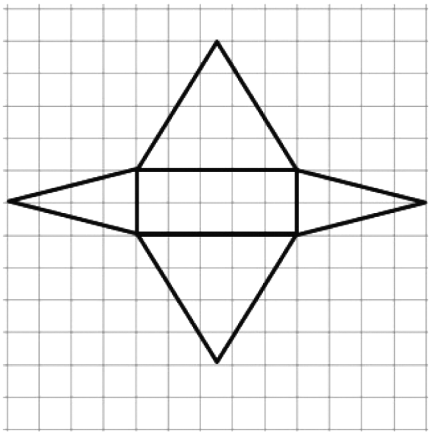
4. The roof of a shed is in the shape of a triangular prism. It has equilateral bases that measure 3 feet on each side. The length of the roof is 10 feet. Sketch the net of the roof, and label the edge lengths.

Name the shape, and write an expression for surface area. Calculate the surface area of the figure. Assume each box on the grid paper represents a 1 ft. $\times$ 1 ft. square.

1.

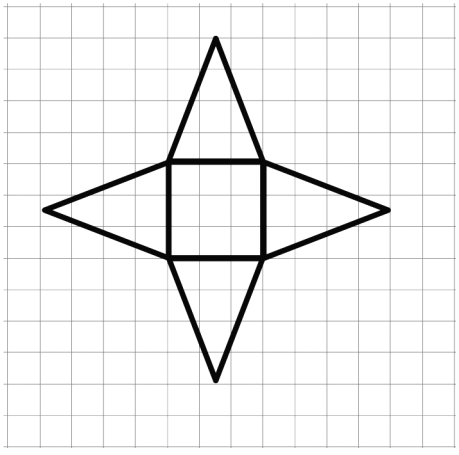


2.



Explain the error in each problem below. Assume each box on the grid paper represents a 1 m $\times$ 1 m square.

3.



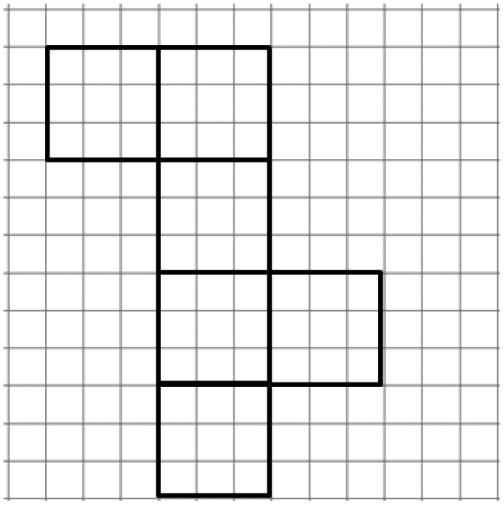
Name of Shape: Rectangular Pyramid, but more specifically a Square Pyramid

Area of Base: $3 \text{ m} \times 3 \text{ m} = 9 \text{ m}^2$

Area of Triangles: $3 \text{ m} \times 4 \text{ m} = 12 \text{ m}^2$

Surface Area: $9 \text{ m}^2 + 12 \text{ m}^2 + 12 \text{ m}^2 + 12 \text{ m}^2 + 12 \text{ m}^2 = 57 \text{ m}^2$

4.



Name of Shape: Rectangular Prism or, more specifically, a Cube

Area of Faces: $3\text{ m} \times 3\text{ m} = 9\text{ m}^2$

Surface Area: $9\text{ m}^2 + 9\text{ m}^2 + 9\text{ m}^2 + 9\text{ m}^2 + 9\text{ m}^2 = 45\text{ m}^2$

5. Sofia and Ella are both writing expressions to calculate the surface area of a rectangular prism. However, they wrote different expressions.

   a. Examine the expressions below, and determine if they represent the same value. Explain why or why not.

Sofia's Expression:

$$(3\text{ cm} \times 4\text{ cm}) + (3\text{ cm} \times 4\text{ cm}) + (3\text{ cm} \times 5\text{ cm}) + (3\text{ cm} \times 5\text{ cm}) + (4\text{ cm} \times 5\text{ cm}) + (4\text{ cm} \times 5\text{ cm})$$

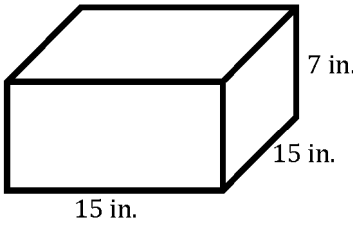
Ella's Expression:

$$2(3\text{ cm} \times 4\text{ cm}) + 2(3\text{ cm} \times 5\text{ cm}) + 2(4\text{ cm} \times 5\text{ cm})$$

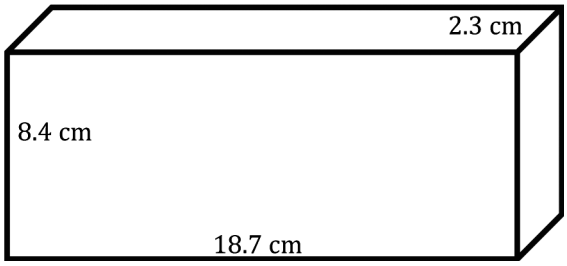
   b. What fact about the surface area of a rectangular prism does Ella's expression show more clearly than Sofia's?

Calculate the surface area of each figure below. Figures are not drawn to scale.

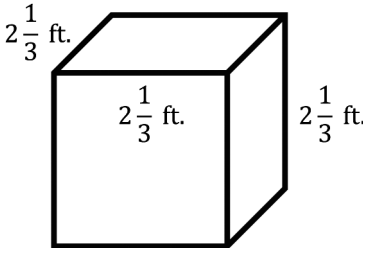
1.



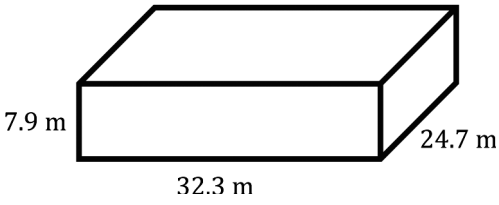
2.



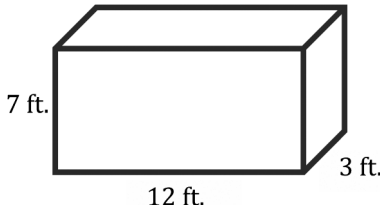
3.



4.



5. Write a numerical expression to show how to calculate the surface area of the rectangular prism. Explain each part of the expression.



6. When Louie was calculating the surface area for Problem 4, he identified the following:

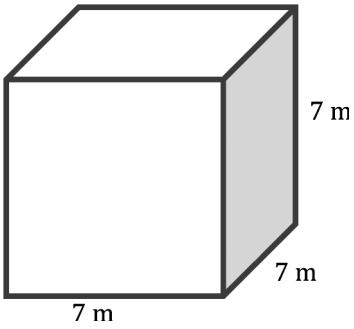
$$\text{length} = 24.7 \text{ m}, \text{ width} = 32.3 \text{ m}, \text{ and height} = 7.9 \text{ m}.$$

However, when Rocko was calculating the surface area for the same problem, he identified the following:

$$\text{length} = 32.3 \text{ m}, \text{ width} = 24.7 \text{ m}, \text{ and height} = 7.9 \text{ m}.$$

Would Louie and Rocko get the same answer? Why or why not?

7. Examine the figure below.



a. What is the most specific name of the three-dimensional shape?

b. Write two different expressions for the surface area.

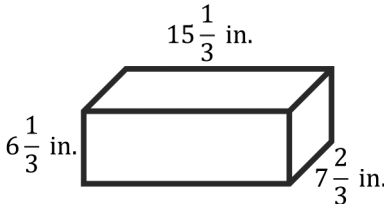
c. Explain how these two expressions are equivalent.

Solve each problem below.

1. Dante built a wooden, cubic toy box for his son. Each side of the box measures 2 feet.
   a. How many square feet of wood did he use to build the box?
   b. How many cubic feet of toys will the box hold?

2. A company that manufactures gift boxes wants to know how many different-sized boxes having a volume of 50 cubic centimeters it can make if the dimensions must be whole centimeters.
   a. List all the possible whole number dimensions for the box.
   b. Which possibility requires the least amount of material to make?
   c. Which box would you recommend the company use? Why?

3. A rectangular box of rice is shown below. What is the greatest amount of rice, in cubic inches, that the box can hold?



4. The Mars Cereal Company has two different cereal boxes for Mars Cereal. The large box is 8 inches wide, 11 inches high, and 3 inches deep. The small box is 6 inches wide, 10 inches high, and 2.5 inches deep.
   a. How much more cardboard is needed to make the large box than the small box?
   b. How much more cereal does the large box hold than the small box?

5. A swimming pool is 8 meters long, 6 meters wide, and 2 meters deep. The water-resistant paint needed for the pool costs $\$6$ per square meter. How much will it cost to paint the pool?
   a. How many faces of the pool do you have to paint?
   b. How much paint (in square meters) do you need to paint the pool?
   c. How much will it cost to paint the pool?

6. Sam is in charge of filling a rectangular hole with cement. The hole is 9 feet long, 3 feet wide, and 2 feet deep. How much cement will Sam need?

7. The volume of Box D subtracted from the volume of Box C is 23.14 cubic centimeters. Box D has a volume of 10.115 cubic centimeters.

   a. Let C be the volume of Box C in cubic centimeters. Write an equation that could be used to determine the volume of Box C.

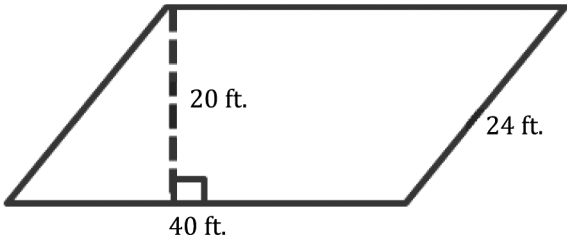
   b. Solve the equation to determine the volume of Box C.

   c. The volume of Box C is one-tenth the volume another box, Box E. Let E represent the volume of Box E in cubic centimeters. Write an equation that could be used to determine the volume of Box E, using the result from part (b).

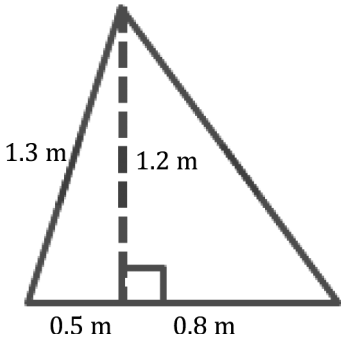
   d. Solve the equation to determine the volume of Box E.

This Problem Set is a culmination of skills learned in this module. Note that the figures are not drawn to scale.

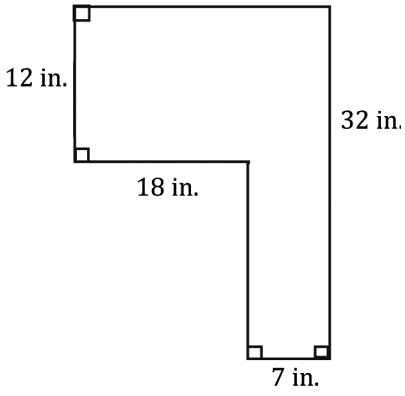
1. Calculate the area of the figure below.



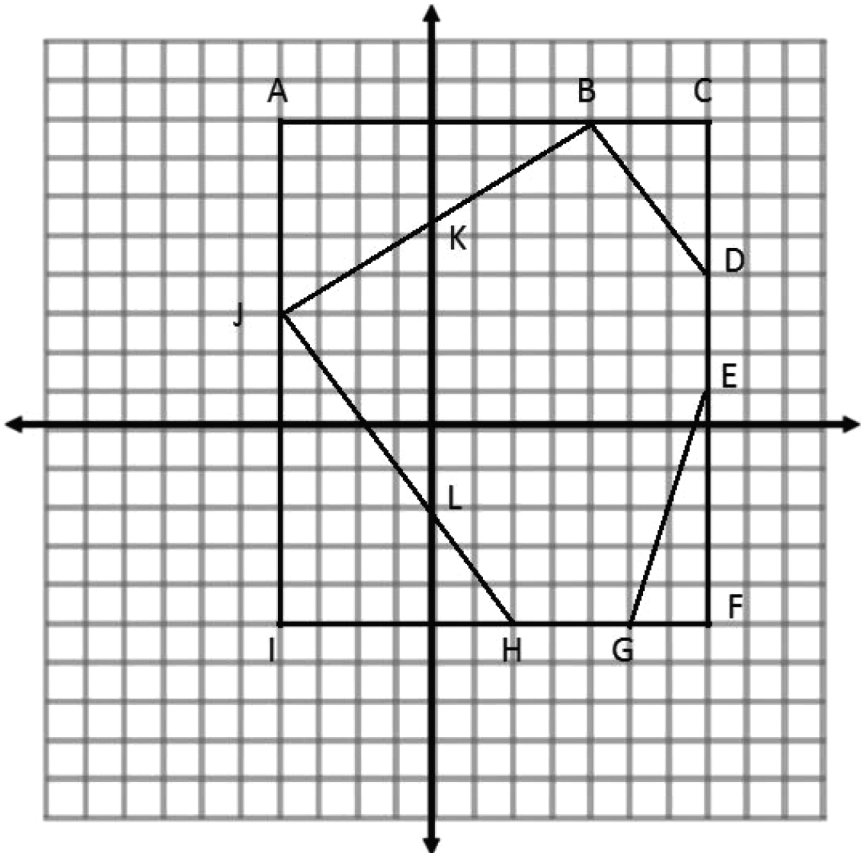
2. Calculate the area of the figure below.



3. Calculate the area of the figure below.



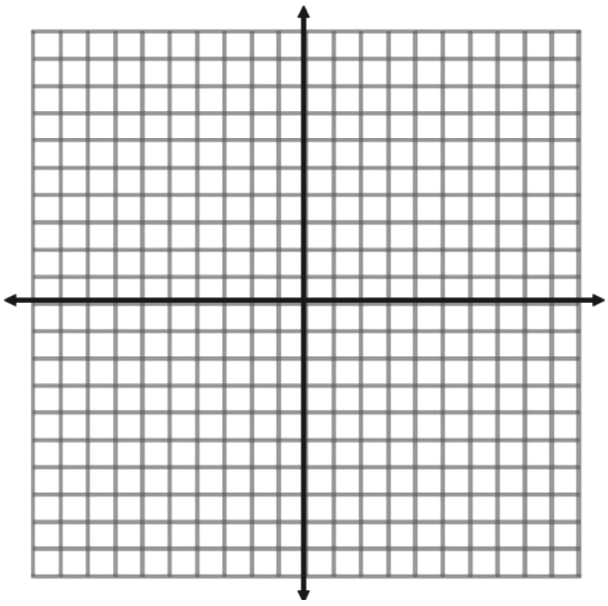
4. Complete the table using the diagram on the coordinate plane.



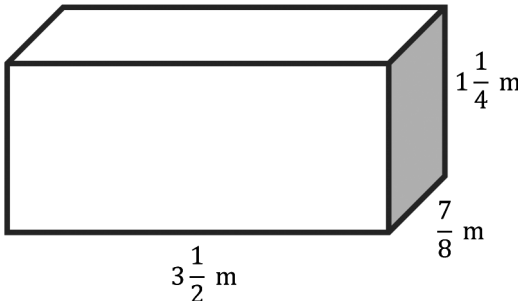
Line Segment	Point	Point	Distance	Proof
$\overline{AB}$				
$\overline{CE}$				
$\overline{GI}$				
$\overline{HI}$				
$\overline{IJ}$				
$\overline{AI}$				
$\overline{AJ}$				

5. Plot the points below, and draw the shape. Then, determine the area of the polygon.

$A(-3, 5), B(4, 3), C(0, -5)$

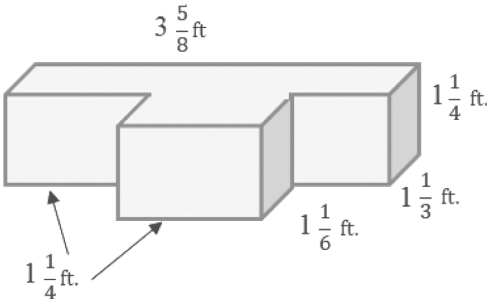


6. Determine the volume of the figure.

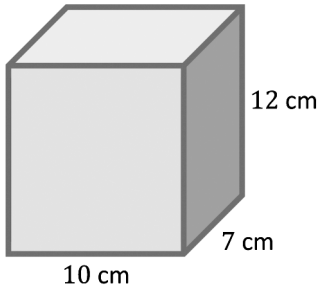


7. Give at least three more expressions that could be used to determine the volume of the figure in Problem 6.

8. Determine the volume of the irregular figure.



9. Draw and label a net for the following figure. Then, use the net to determine the surface area of the figure.



10. Determine the surface area of the figure in Problem 9 using the formula $SA = 2lw + 2lh + 2wh$. Then, compare your answer to the solution in Problem 9.

11. A parallelogram has a base of 4.5 cm and an area of 9.495 cm^2. Tania wrote the equation $4.5x = 9.495$ to represent this situation.
    a. Explain what x represents in the equation.
    b. Solve the equation for x and determine the height of the parallelogram.

12. Triangle A has an area equal to one-third the area of Triangle B. Triangle A has an area of $3\frac{1}{2}$ square meters.
    a. Gerard wrote the equation $\frac{B}{3} = 3\frac{1}{2}$. Explain what B represents in the equation.
    b. Determine the area of Triangle B.

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Module 6

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1. For each of the following, determine whether the question is a statistical question. Give a reason for your answer.
   a. How many letters are in my last name?
   b. How many letters are in the last names of the students in my sixth-grade class?
   c. What are the colors of the shoes worn by students in my school?
   d. What is the maximum number of feet that roller coasters drop during a ride?
   e. What are the heart rates of students in a sixth-grade class?
   f. How many hours of sleep per night do sixth graders usually get when they have school the next day?
   g. How many miles per gallon do compact cars get?

2. Identify each of the following data sets as categorical (C) or numerical (N). Explain your answer.
   a. Arm spans of 12 sixth graders
   b. Number of languages spoken by each of 20 adults
   c. Favorite sport of each person in a group of 20 adults
   d. Number of pets for each of 40 third graders
   e. Number of hours a week spent reading a book for a group of middle school students

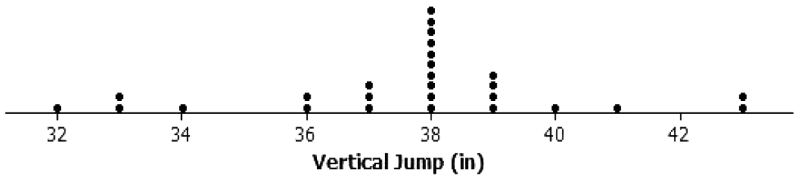
3. Rewrite each of the following questions as a statistical question.
   a. How many pets does your teacher have?
   b. How many points did the high school soccer team score in its last game?
   c. How many pages are in our math book?
   d. Can I do a handstand?

4. Write a statistical question that would be answered by collecting data from the sixth graders in your classroom.

5. Are the data you would collect to answer the question you wrote in Problem 4 categorical or numerical? Explain your answer.

1. The dot plot below shows the vertical jump height (in inches) of some NBA players. A vertical jump height is how high a player can jump from a standstill.

Dot Plot of Vertical Jump



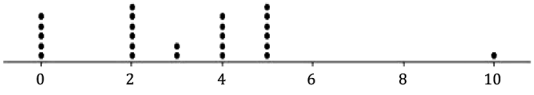
   a. What statistical question do you think could be answered using these data?
   b. What was the highest vertical jump by a player?
   c. What was the lowest vertical jump by a player?
   d. What is the most common vertical jump height (the height that occurred most often)?
   e. How many players jumped the most common vertical jump height?
   f. How many players jumped higher than 40 inches?
   g. Another NBA player jumped 33 inches. Add a dot for this player on the dot plot. How does this player compare with the other players?

2. Below are two statistical questions and two different dot plots of data collected to answer these questions. Match each statistical question with its dot plot, and explain each choice.

   Statistical Questions:

   a. What is the number of fish (if any) that students in class have in an aquarium at their homes?
   b. How many days out of the week do the children on my street go to the playground?

Dot Plot A



Dot Plot B

3. Read each of the following statistical questions. Write a description of what the dot plot of data collected to answer the question might look like. Your description should include a description of the spread of the data and the center of the data.
   a. What is the number of hours sixth graders are in school during a typical school day?
   b. What is the number of video games owned by the sixth graders in our class?

1. The data below are the number of goals scored by a professional indoor soccer team over its last 23 games.

8 16 10 9 11 11 10 15 16 11 15 13 8 9 11 9 8 11 16 15 10 9 12

   a. Make a dot plot of the number of goals scored.
   b. What number of goals describes the center of the data?
   c. What is the least and most number of goals scored by the team?
   d. Over the 23 games played, the team lost 10 games. Circle the dots on the plot that you think represent the games that the team lost. Explain your answer.

2. A sixth grader rolled two number cubes 21 times. The student found the sum of the two numbers that he rolled each time. The following are the sums for the 21 rolls of the two number cubes.

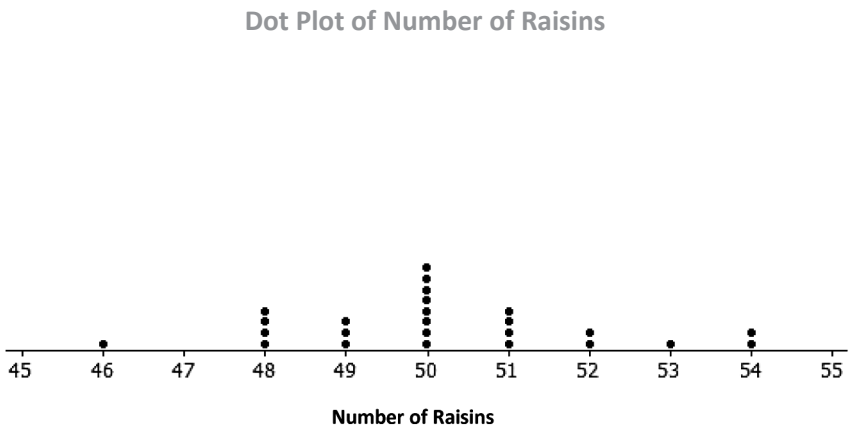
9 2 4 6 5 7 8 11 9 4 6 5 7 7 8 8 7 5 7 6 6

   a. Complete the frequency table.

Sum Rolled	Tally	Frequency
2		
3		
4		
5		
6		
7		
8		
9		
10		
11		
12		

   b. What sum describes the center of the data?
   c. What sum occurred most often for these 21 rolls of the number cubes?

3. The dot plot below shows the number of raisins in 25 small boxes of raisins.

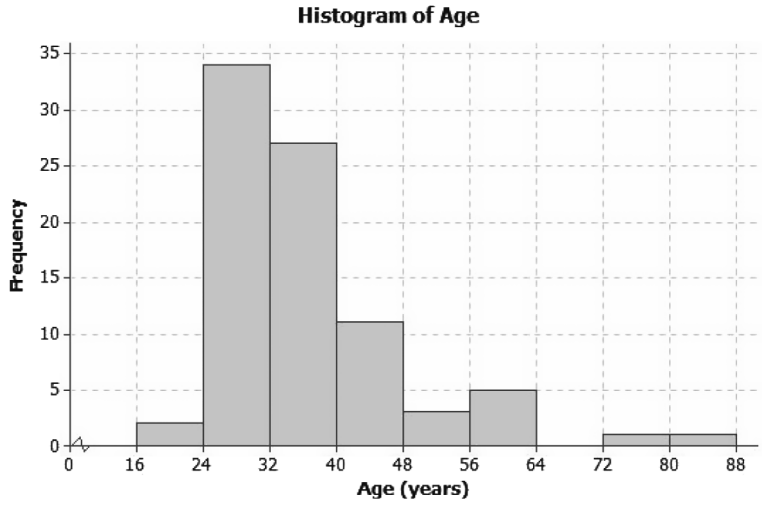


a. Complete the frequency table.

Number of Raisins	Tally	Frequency
46		
47		
48		
49		
50		
51		
52		
53		
54		

b. Another student opened up a box of raisins and reported that it had 63 raisins. Do you think that this student had the same size box of raisins? Why or why not?

1. The following histogram summarizes the ages of the actresses whose performances have won in the Best Leading Actress category at the annual Academy Awards (i.e., Oscars).



   a. Which age interval contains the most actresses? How many actresses are represented in that interval?
   b. Describe the shape of the histogram.
   c. What does the histogram tell you about the ages of actresses who won the Oscar for best actress?
   d. Which interval describes the center of the ages of the actresses?
   e. An age of 72 would be included in which interval?

2. The frequency table below shows the seating capacity of arenas for NBA basketball teams.

Number of Seats	Tally	Frequency
17,000–< 17,500	||	2
17,500–< 18,000	|	1
18,000–< 18,500	𝍸 |	6
18,500–< 19,000	𝍸	5
19,000–< 19,500	𝍸	5
19,500–< 20,000	𝍸	5
20,000–< 20,500	||	2
20,500–< 21,000	||	2
21,000–< 21,500		0
21,500–< 22,000		0
22,000–< 22,500	|	1

   a. Draw a histogram for the number of seats in the NBA arenas data. Use the histograms you have seen throughout this lesson to help you in the construction of your histogram.
   b. What is the width of each interval? How do you know?

c. Describe the shape of the histogram.

d. Which interval describes the center of the number of seats data?

3. Listed are the grams of carbohydrates in hamburgers at selected fast food restaurants.

33	40	66	45	28	30	52	40	26	42
42	44	33	44	45	32	45	45	52	24

a. Complete the frequency table using the given intervals of width 5.

Number of Carbohydrates (grams)	Tally	Frequency
$20 - < 25$		
$25 - < 30$		
$30 - < 35$		
$35 - < 40$		
$40 - < 45$		
$45 - < 50$		
$50 - < 55$		
$55 - < 60$		
$60 - < 65$		
$65 - < 70$		

b. Draw a histogram of the carbohydrate data.

c. Describe the center and shape of the histogram.

d. In the frequency table below, the intervals are changed. Using the carbohydrate data above, complete the frequency table with intervals of width 10.

Number of Carbohydrates (grams)	Tally	Frequency
$20 - < 30$		
$30 - < 40$		
$40 - < 50$		
$50 - < 60$		
$60 - < 70$		

e. Draw a histogram.

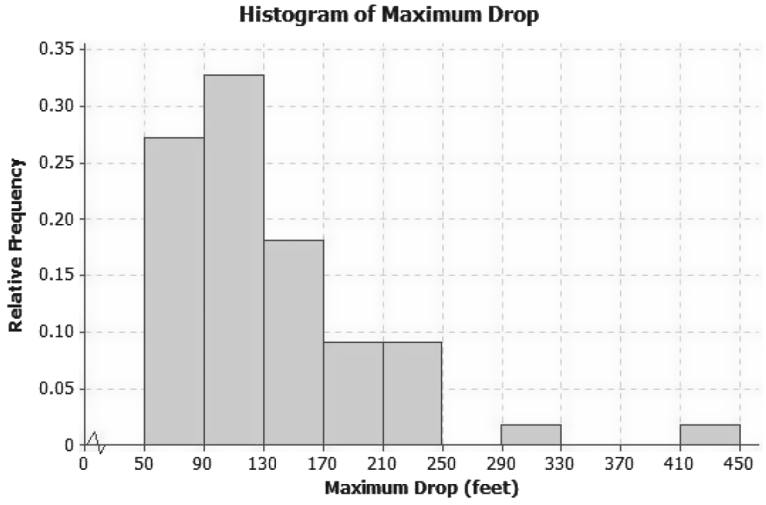
4. Use the histograms that you constructed in Exercise 3 parts (b) and (e) to answer the following questions.

a. Why are there fewer bars in the histogram in part (e) than the histogram in part (b)?

b. Did the shape of the histogram in part (e) change from the shape of the histogram in part (b)?

c. Did your estimate of the center change from the histogram in part (b) to the histogram in part (e)?

1. Below is a relative frequency histogram of the maximum drop (in feet) of a selected group of roller coasters.



   a. Describe the shape of the relative frequency histogram.

   b. What does the shape tell you about the maximum drop (in feet) of roller coasters?

   c. Jerome said that more than half of the data values are in the interval from 50 to 130 feet. Do you agree with Jerome? Why or why not?

2. The frequency table below shows the length of selected movies shown in a local theater over the past 6 months.

Length of Movie (minutes)	Tally	Frequency	Relative Frequency
$80 - < 90$	|	1	
$90 - < 100$	||||	4	
$100 - < 110$	𝍸 ||	7	
$110 - < 120$	𝍸	5	
$120 - < 130$	𝍸 ||	7	
$130 - < 140$	|||	3	
$140 - < 150$	|	1	

   a. Complete the relative frequency column. Round the relative frequencies to the nearest thousandth.

   b. What percentage of the movie lengths are greater than or equal to 130 minutes?

   c. Draw a relative frequency histogram. (Hint: Label the relative frequency scale starting at 0 and going up to 0.30, marking off intervals of 0.05.)

   d. Describe the shape of the relative frequency histogram.

   e. What does the shape tell you about the length of movie times?

3. The table below shows the highway miles per gallon of different compact cars.

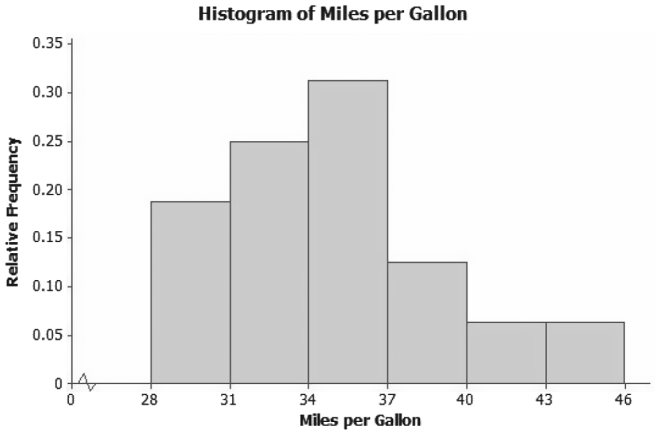
Mileage	Tally	Frequency	Relative Frequency
$28 - < 31$	|||	3	
$31 - < 34$	||||	4	
$34 - < 37$	𝍸	5	
$37 - < 40$	||	2	
$40 - < 43$	|	1	
$43 - < 46$		0	
$46 - < 49$		0	
$49 - < 52$	|	1	

a. What is the total number of compact cars?

b. Complete the relative frequency column. Round the relative frequencies to the nearest thousandth.

c. What percent of the cars get between 31 and up to but not including 37 miles per gallon on the highway?

d. Juan drew the relative frequency histogram of the highway miles per gallon for the compact cars, shown on the right. Did Juan draw the histogram correctly? Explain your answer.

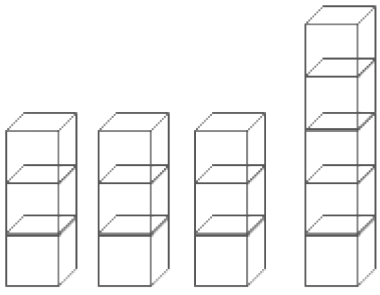


1. A game was played where ten tennis balls are tossed into a basket from a certain distance. The numbers of successful tosses for six students were $4, 1, 3, 2, 1, 7$.
   a. Draw a representation of the data using cubes where one cube represents one successful toss of a tennis ball into the basket.
   b. Represent the original data set using a dot plot.

2. Find the mean number of successful tosses for this data set using the fair share method. For each step, show the cubes representation and the corresponding dot plot. Explain each step in words in the context of the problem. You may move more than one successful toss in a step, but be sure that your explanation is clear. You must show two or more steps.

Step Described in Words	Fair Share Cubes Representation	Dot Plot

3. The numbers of pockets in the clothes worn by four students to school today are $4, 1, 3$, and 6. Paige produces the following cubes representation as she does the fair share process. Help her decide how to finish the process now that she has stacks of $3, 3, 3$, and 5 cubes.



4. Suppose that the mean number of chocolate chips in 30 cookies is 14 chocolate chips.
   a. Interpret the mean number of chocolate chips in terms of fair share.
   b. Describe the dot plot representation of the fair share mean of 14 chocolate chips in 30 cookies.

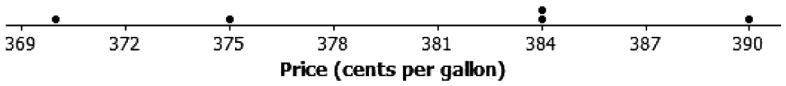
5. Suppose that the following are lengths (in millimeters) of radish seedlings grown in identical conditions for three days: $12\ 11\ 12\ 14\ 13\ 9\ 13\ 11\ 13\ 10\ 10\ 14\ 16\ 13\ 11$.
   a. Find the mean length for these 15 radish seedlings.
   b. Interpret the value from part (a) in terms of the fair share mean length.

1. The number of pockets in the clothes worn by four students to school today is $4, 1, 3, 4$.
   a. Perform the fair share process to find the mean number of pockets for these four students. Sketch the cubes representations for each step of the process.
   b. Find the total of the distances on each side of the mean to show the mean found in part (a) is correct.

2. The times (rounded to the nearest minute) it took each of six classmates to run a mile are $7, 9, 10, 11, 11$, and 12 minutes.
   a. Draw a dot plot representation for the mile times.
   b. Suppose that Sabina thinks the mean is 11 minutes. Is she correct? Explain your answer.
   c. What is the mean?

3. The prices per gallon of gasoline (in cents) at five stations across town on one day are shown in the following dot plot. The price for a sixth station is missing, but the mean price for all six stations was reported to be 380 cents per gallon. Use the balancing process to determine the price of a gallon of gasoline at the sixth station.

Dot Plot of Price (cents per gallon)



4. The number of phones (landline and cell) owned by the members of each of nine families is $3, 5, 6, 6, 6, 6, 7, 7, 8$.
   a. Use the mathematical formula for the mean (determine the sum of the data points, and divide by the number of data points) to find the mean number of phones owned for these nine families.
   b. Draw a dot plot of the data, and verify your answer in part (a) by using the balancing process.

1. The number of pockets in the clothes worn by seven students to school yesterday was $4, 1, 3, 4, 2, 2, 5$. Today, those seven students each had three pockets in their clothes.
   a. Draw one dot plot of the number of pockets data for what students wore yesterday and another dot plot for what students wore today. Be sure to use the same scale.
   b. For each distribution, find the mean number of pockets worn by the seven students. Show the means on the dot plots by using the balancing Δ symbol.
   c. For which distribution is the mean number of pockets a better indicator of what is typical? Explain.

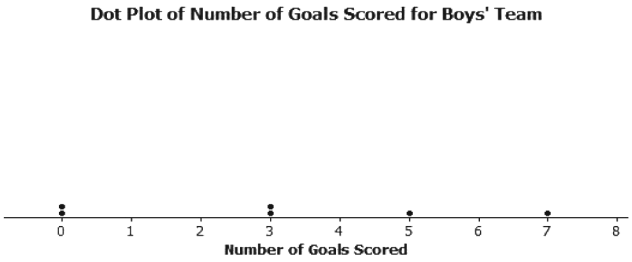
2. The number of minutes (rounded to the nearest minute) it took to run a certain route was recorded for each of five students. The resulting data were 9, 10, 11, 14, and 16 minutes. The number of minutes (rounded to the nearest minute) it took the five students to run a different route was also recorded, resulting in the following data: 6, 8, 12, 15, and 19 minutes.
   a. Draw dot plots for the distributions of the times for the two routes. Be sure to use the same scale on both dot plots.
   b. Do the distributions have the same mean? What is the mean of each dot plot?
   c. In which distribution is the mean a better indicator of the typical amount of time taken to run the route? Explain.

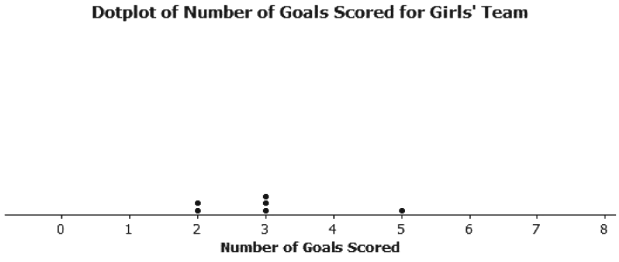
3. The following table shows the prices per gallon of gasoline (in cents) at five stations across town as recorded on Monday, Wednesday, and Friday of a certain week.

Day	R&C	Al's	PB	Sam's	Ann's
Monday	359	358	362	359	362
Wednesday	357	365	364	354	360
Friday	350	350	360	370	370

   a. The mean price per day for the five stations is the same for each of the three days. Without doing any calculations and simply looking at Friday's prices, what must the mean price be?
   b. For which daily distribution is the mean a better indicator of the typical price per gallon for the five stations? Explain.

1. Suppose the dot plot on the left shows the number of goals a boys' soccer team has scored in six games so far this season, and the dot plot on the right shows the number of goals a girls' soccer team has scored in six games so far this season. The mean for both of these teams is 3.





a. Before doing any calculations, which dot plot has the larger MAD? Explain how you know.

b. Use the following tables to find the MAD for each distribution. Round your calculations to the nearest hundredth.

Boys' Team	
Number of Goals	**Absolute Deviation**
0	
0	
3	
3	
5	
7	
Sum	

Girls' Team	
Number of Goals	**Absolute Deviation**
2	
2	
3	
3	
3	
5	
Sum	

c. Based on the computed MAD values, for which distribution is the mean a better indication of a typical value? Explain your answer.

2. Recall Robert's problem of deciding whether to move to New York City or to San Francisco. A table of temperatures (in degrees Fahrenheit) and absolute deviations for New York City follows:

Average Temperature in New York City												
Month	**Jan.**	**Feb.**	**Mar.**	**Apr.**	**May**	**June**	**July**	**Aug.**	**Sep.**	**Oct.**	**Nov.**	**Dec.**
Temperature (°F)	39	42	50	61	71	81	85	84	76	65	55	47
Absolute Deviation	24	21	13	2	8	18	22	21	13	2	8	16

a. The absolute deviations for the monthly temperatures are shown in the above table. Use this information to calculate the MAD. Explain what the MAD means in words.

b. Complete the following table, and then use the values to calculate the MAD for the San Francisco data distribution.

Average Temperature in San Francisco												
Month	**Jan.**	**Feb.**	**Mar.**	**Apr.**	**May**	**June**	**July**	**Aug.**	**Sep.**	**Oct.**	**Nov.**	**Dec.**
Temperature (°F)	57	60	62	63	64	67	67	68	70	69	63	58
Absolute Deviation												

c. Comparing the MAD values for New York City and San Francisco, which city would Robert choose to move to if he is interested in having a lot of variability in monthly temperatures? Explain using the MAD.

3. Consider the following data of the number of green jelly beans in seven bags sampled from each of five different candy manufacturers (Awesome, Delight, Finest, Sweeties, YumYum). Note that the mean of each distribution is 42 green jelly beans.

	Bag 1	**Bag 2**	**Bag 3**	**Bag 4**	**Bag 5**	**Bag 6**	**Bag 7**
Awesome	40	40	41	42	42	43	46
Delight	22	31	36	42	48	53	62
Finest	26	36	40	43	47	50	52
Sweeties	36	39	42	42	42	44	49
YumYum	33	36	42	42	45	48	48

a. Complete the following table of the absolute deviations for the seven bags for each candy manufacturer.

Absolute Deviations							
	Bag 1	**Bag 2**	**Bag 3**	**Bag 4**	**Bag 5**	**Bag 6**	**Bag 7**
Awesome	2	2	1	0	0	1	4
Delight	20	11	6				
Finest	16						
Sweeties							
YumYum							

b. Based on what you learned about MAD, which manufacturer do you think will have the lowest MAD? Calculate the MAD for the manufacturer you selected.

	Bag 1	Bag 2	Bag 3	Bag 4	Bag 5	Bag 6	Bag 7	SUM	MAD
Awesome									
Delight									
Finest									
Sweeties									
YumYum									

1. Draw a dot plot of the times that five students studied for a test if the mean time they studied was 2 hours and the MAD was 0 hours.

2. Suppose the times that five students studied for a test are as follows:

Student	Aria	Ben	Chloe	Dellan	Emma
Time (hours)	1.5	2	2	2.5	2

Michelle said that the MAD for this data set is 0 hours because the dot plot is balanced around 2. Without doing any calculations, do you agree with Michelle? Why or why not?

3. Suppose that the number of text messages eight students receive on a typical day is as follows:

Student	1	2	3	4	5	6	7	8
Number of Text Messages	42	56	35	70	56	50	65	50

a. Draw a dot plot for the number of text messages received on a typical day for these eight students.

b. Find the mean number of text messages these eight students receive on a typical day.

c. Find the MAD for the number of text messages, and explain its meaning using the words of this problem.

d. Describe the shape of this data distribution.

e. Suppose that in the original data set, Student 3 receives an additional five text messages per day, and Student 4 receives five fewer text messages per day.

i. Without doing any calculations, does the mean for the new data set stay the same, increase, or decrease as compared to the original mean? Explain your reasoning.

ii. Without doing any calculations, does the MAD for the new data set stay the same, increase, or decrease as compared to the original MAD? Explain your reasoning.

1. Two classes took the same mathematics test. Summary measures for the two classes are as follows:

	Mean	MAD
Class A	78	2
Class B	78	10

   a. Suppose that you received the highest score in your class. Would your score have been higher if you were in Class A or Class B? Explain your reasoning.

   b. Suppose that your score was below the mean score. In which class would you prefer to have been? Explain your reasoning.

2. Eight of each of two varieties of tomato plants, LoveEm and Wonderful, are grown under the same conditions. The numbers of tomatoes produced from each plant of each variety are shown:

Plant	1	2	3	4	5	6	7	8
LoveEm	27	29	27	28	31	27	28	27
Wonderful	31	20	25	50	32	25	22	51

   a. Draw dot plots to help you decide which variety is more productive.

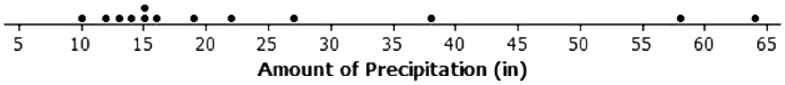
   b. Calculate the mean number of tomatoes produced for each variety. Which one produces more tomatoes on average?

   c. If you want to be able to accurately predict the number of tomatoes a plant is going to produce, which variety should you choose—the one with the smaller MAD or the one with the larger MAD? Explain your reasoning.

   d. Calculate the MAD of each plant variety.

1. The amount of precipitation in each of the western states in the United States is given in the table as well as the dot plot.

State	Amount of Precipitation (inches)
WA	38.4
OR	27.4
CA	22.2
MT	15.3
ID	18.9
WY	12.9
NV	9.5
UT	12.2
CO	15.9
AZ	13.6
NM	14.6
AK	58.3
HI	63.7



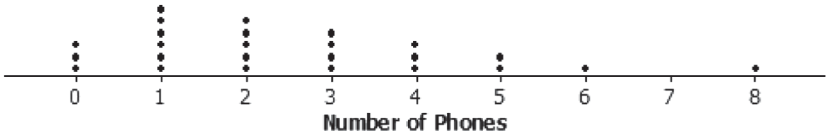
Source: http://www.currentresults.com/Weather/US/average-annual-state-precipitation.php

   a. How do the amounts vary across the states?
   b. Find the median. What does the median tell you about the amount of precipitation?
   c. Do you think the mean or median would be a better description of the typical amount of precipitation? Explain your thinking.

2. Identify the following as true or false. If a statement is false, give an example showing why.
   a. The median is always equal to one of the values in the data set.
   b. The median is halfway between the least and greatest values in the data set.
   c. At most, half of the values in a data set have values less than the median.
   d. In a data set with 25 different values, if you change the two smallest values in the data set to smaller values, the median will not be changed.
   e. If you add 10 to every value in a data set, the median will not change.

3. Make up a data set such that the following is true:
   a. The data set has 11 different values, and the median is 5.
   b. The data set has 10 values, and the median is 25.
   c. The data set has 7 values, and the median is the same as the least value.

4. The dot plot shows the number of landline phones that a sample of people have in their homes.



   a. How many people were in the sample?
   b. Why do you think three people have no landline phones in their homes?
   c. Find the median number of phones for the people in the sample.

5. The salaries of the Los Angeles Lakers for the 2012–2013 basketball season are given below. The salaries in the table are ordered from largest to smallest.

Player	Salary
Kobe Bryant	$27,849,149
Dwight Howard	$19,536,360
Pau Gasol	$19,000,000
Steve Nash	$8,700,000
Metta World Peace	$7,258,960
Steve Blake	$4,000,000
Jordan Hill	$3,563,600
Chris Duhon	$3,500,000
Jodie Meeks	$1,500,000
Earl Clark	$1,240,000
Devin Ebanks	$1,054,389
Darius Morris	$962,195
Antawn Jamison	$854,389
Robert Sacre	$473,604
Darius Johnson-Odom	$203,371

Source: www.basketball-reference.com/contracts/LAL.html

   a. Just looking at the data, what do you notice about the salaries?
   b. Find the median salary, and explain what it tells you about the salaries.
   c. Find the median of the lower half of the salaries and the median of the upper half of the salaries.
   d. Find the width of each of the following intervals. What do you notice about the size of the interval widths, and what does that tell you about the salaries?
      i. Minimum salary to the median of the lower half:
      ii. Median of the lower half to the median of the whole data set:
      iii. Median of the whole data set to the median of the upper half:
      iv. Median of the upper half to the highest salary:

6. Use the salary table from above to answer the following.
   a. If you were to find the mean salary, how do you think it would compare to the median? Explain your reasoning.
   b. Which measure do you think would give a better picture of a typical salary for the Lakers, the mean or the median? Explain your thinking.

1. The average monthly high temperatures (in degrees Fahrenheit) for St. Louis and San Francisco are given in the table below.

	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.	Oct.	Nov.	Dec.
St. Louis	40	45	55	67	77	85	89	88	81	69	56	43
San Francisco	57	60	62	63	64	67	67	68	70	69	63	57

Data Source: http://www.weather.com

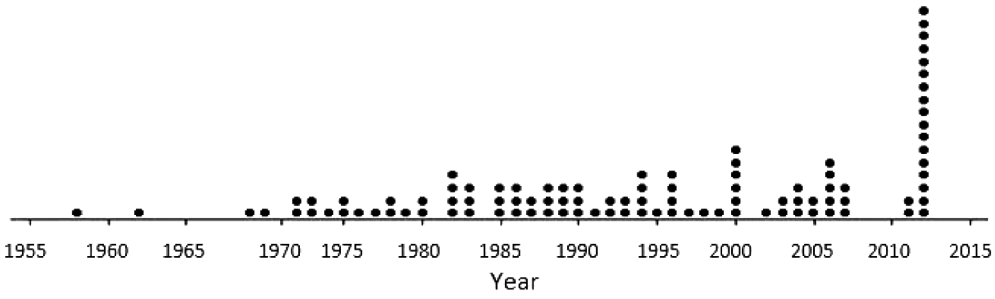
   a. How do you think the data might have been collected?

   b. Do you think it would be possible for $\frac{1}{4}$ of the temperatures in the month of July for St. Louis to be $95°\text{F}$ or above? Why or why not?

   c. Make a prediction about how the values of the IQR for the temperatures for each city compare. Explain your thinking.

   d. Find the IQR for the average monthly high temperature for each city. How do the results compare to what you predicted?

2. The plot below shows the years in which each of 100 pennies were made.



   a. What does the stack of 17 dots at 2012 representing 17 pennies tell you about the age of these pennies in 2014?

   b. Here is some information about the sample of 100 pennies. The mean year they were made is 1994; the first year any of the pennies were made was 1958; the newest pennies were made in 2012; Q1 is 1984, the median is 1994, and Q3 is 2006; the MAD is 11.5 years. Use the information to indicate the years in which the middle half of the pennies was made.

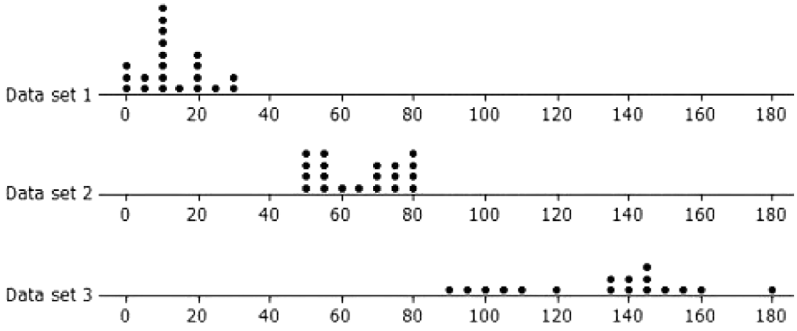
3. In each of parts (a)–(c), create a data set with at least 6 values such that it has the following properties:

   a. A small IQR and a big range (maximum – minimum)

   b. An IQR equal to the range

   c. The lower quartile is the same as the median.

4. Rank the following three data sets by the value of the IQR.



5. Here are the number of fries in each of the bags from Restaurant A:

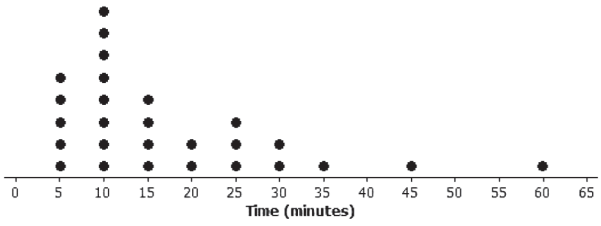
$$80, 72, 77, 80, 90, 85, 93, 79, 84, 73, 87, 67, 80, 86, 92, 88, 86, 88, 66, 77$$

   a. Suppose one bag of fries had been overlooked and that bag had only 50 fries. If that value is added to the data set, would the IQR change? Explain your reasoning.

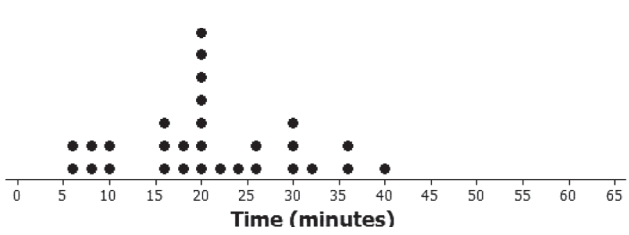
   b. Will adding another data value always change the IQR? Give an example to support your answer.

1. Dot plots for the amount of time it took students in Mr. S's and Ms. J's classes to get to school are below.

Mr. S's Class



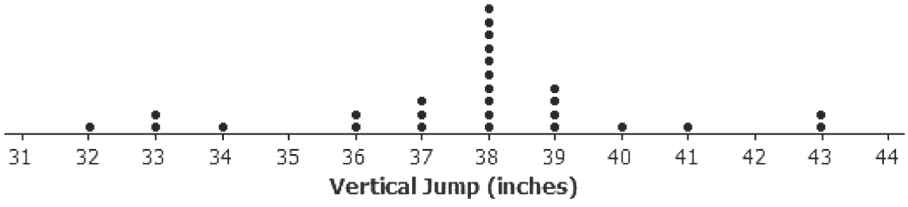
Ms. J's Class



   a. Make a box plot of the times for each class.

   b. What is one thing you can see in the dot plot that you cannot see in the box plot? What is something that is easier to see in the box plot than in the dot plot?

2. The dot plot below shows the vertical jump of some NBA players. A vertical jump is how high a player can jump from a standstill. Draw a box plot of the heights for the vertical jumps of the NBA players above the dot plot.



3. The mean daily temperatures in degrees Fahrenheit for the month of February for a certain city are as follows:

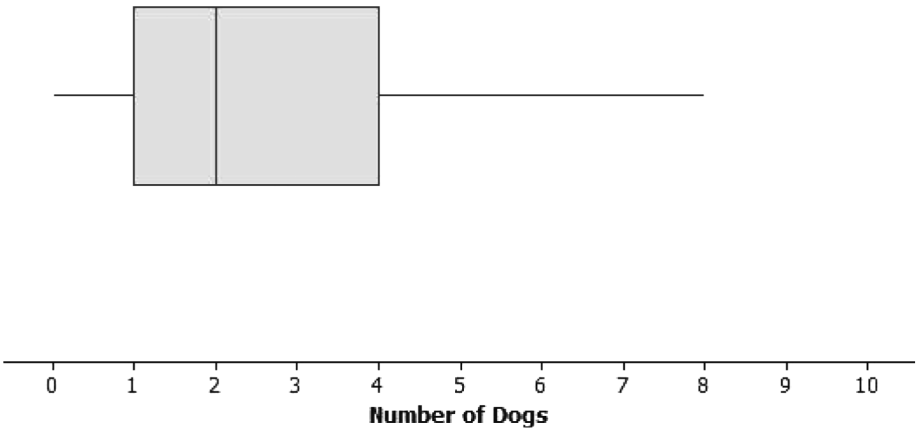
   4, 11, 14, 15, 17, 20, 30, 23, 20, 35, 35, 31, 34, 23, 15, 19, 39, 22, 15, 15, 19, 39, 22, 23, 29, 26, 29, 29

   a. Make a box plot of the temperatures.

   b. Make a prediction about the part of the United States you think the city might be located. Explain your reasoning.

   c. Describe the temperature data distribution. Include a description of center and spread.

4. The box plot below summarizes data from a survey of households about the number of dogs they have. Identify each of the following statements as true or false. Explain your reasoning in each case.



a. The maximum number of dogs per house is 8.

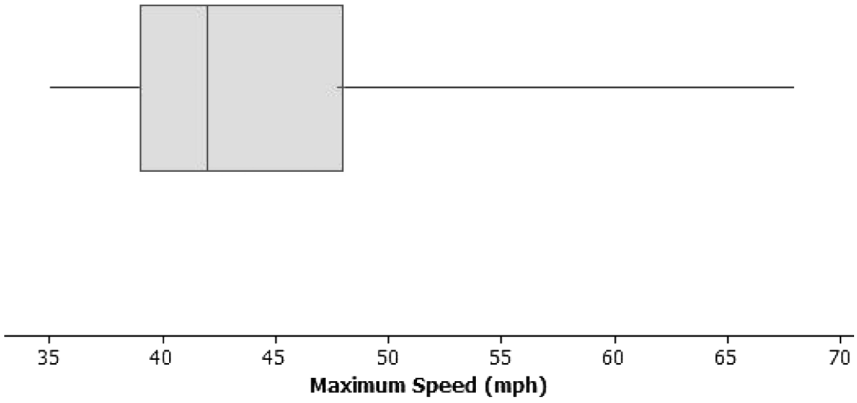
b. At least $\frac{1}{2}$ of the houses have 2 or more dogs.

c. All of the houses have dogs.

d. Half of the houses surveyed have between 2 and 4 dogs.

e. Most of the houses surveyed have no dogs.

1. The box plot below summarizes the maximum speeds of certain kinds of fish.



   a. Estimate the values in the five-number summary from the box plot.
   b. The fastest fish is the sailfish at 68 mph, followed by the marlin at 50 mph. What does this tell you about the spread of the fish speeds in the top quarter of the box plot?
   c. Use the five-number summary and the IQR to describe the speeds of the fish.

2. Suppose the interquartile range for the number of hours students spent playing video games during the school week was 10. What do you think about each of the following statements? Explain your reasoning.
   a. About half of the students played video games for 10 hours during a school week.
   b. All of the students played at least 10 hours of video games during the school week.
   c. About half of the class could have played video games from 10 to 20 hours a week or from 15 to 25 hours.

3. Suppose you know the following for a data set: The minimum value is 130, the lower quartile is 142, the IQR is 30, half of the data are less than 168, and the maximum value is 195.
   a. Think of a context for which these numbers might make sense.
   b. Sketch a box plot.
   c. Are there more data values above or below the median? Explain your reasoning.

4. The speeds for the fastest dogs are given in the table below.

Breed	Speed (mph)
Greyhound	45
African wild dog	44
Saluki	43
Whippet	36
Basanji	35
German shepherd	32
Vizsla	32
Doberman pinscher	30

Breed	Speed (mph)
Irish wolfhound	30
Dalmatian	30
Border collie	30
Alaskan husky	28
Giant schnauzer	28
Jack Russell terrier	25
Australian cattle dog	20

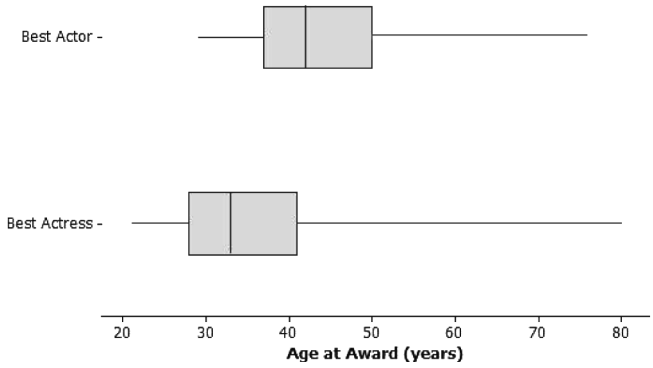
Data source: http://www.vetstreet.com/our-pet-experts/meet-eight-of-the-fastest-dogs-on-the-planet; http://canidaepetfood.blogspot.com/2012/08/which-dog-breeds-are-fastest.html

a. Find the five-number summary for this data set, and use it to create a box plot of the speeds.

b. Why is the median not in the center of the box?

c. Write a few sentences telling your friend about the speeds of the fastest dogs.

1. The box plots below summarize the ages at the time of the award for leading actress and leading actor Academy Award winners.



Data source: http://en.wikipedia.org/wiki/List_of_Best_Actor_winners_by_age_at_win
http://en.wikipedia.org/wiki/List_of_Best_Actress_winners_by_age_at_win

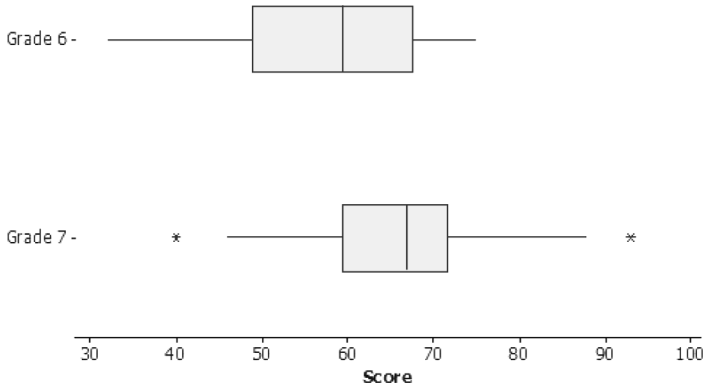
a. Based on the box plots, do you think it is harder for an older woman to win an Academy Award for best actress than it is for an older man to win a best actor award? Why or why not?

b. The oldest female to win an Academy Award was Jessica Tandy in 1990 for *Driving Miss Daisy*. The oldest actor was Henry Fonda for *On Golden Pond* in 1982. How old were they when they won the award? How can you tell? Were they a lot older than most of the other winners?

c. The 2013 winning actor was Daniel Day-Lewis for *Lincoln*. He was 55 years old at that time. What can you say about the percent of male award winners who were older than Daniel Day-Lewis when they won their Oscars?

d. Use the information provided by the box plots to write a paragraph supporting or refuting the claim that fewer older actresses than actors win Academy Awards.

2. The scores of sixth and seventh graders on a test about polygons and their characteristics are summarized in the box plots below.



   a. In which grade did the students do the best? Explain how you can tell.
   b. Why do you think two of the data values for Grade 7 are not part of the line segments?
   c. How do the median scores for the two grades compare? Is this surprising? Why or why not?
   d. How do the IQRs compare for the two grades?

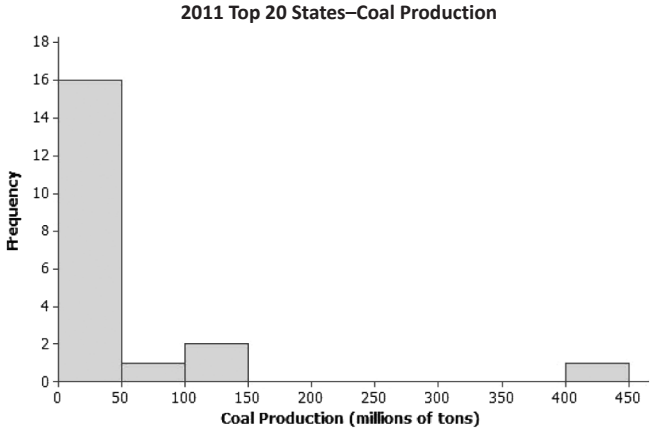
3. A formula for the IQR could be written as $Q3 - Q1 = IQR$. Suppose you knew the IQR and the Q1. How could you find the Q3?

4. Consider the statement, "Historically, the average length of service as chief justice on the Supreme Court has been less than 15 years; however, since 1969 the average length of service has increased." Use the data given in Exercise 1 to answer the following questions.

   a. Do you agree or disagree with the statement? Explain your thinking.
   b. Would your answer change if you used the median number of years rather than the mean?

Your teacher will outline steps you are expected to complete in the next several days to develop this project. Keep in mind that the first step is to formulate a statistical question. With one of the statistical questions posed in this lesson or with a new one developed in this lesson, describe your question and plan to collect and summarize data. Complete the process as outlined by your teacher.

1. The following histogram shows the amount of coal produced (by state) for the 20 largest coal-producing states in 2011. Many of these states produced less than 50 million tons of coal, but one state produced over 400 million tons (Wyoming). For the histogram, which *one* of the three sets of summary measures could match the graph? For each choice that you eliminate, give at least one reason for eliminating the choice.



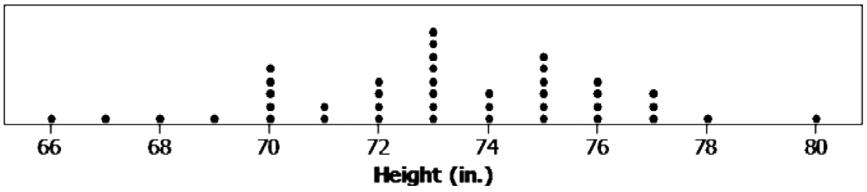
Source: National Mining Association (2013) from http://www.nma.org/pdf/c_production_state_rank.pdf accessed May 5, 2013

a. Minimum $= 1$, Q1 $= 12$, Median $= 36$, Q3 $= 57$, Maximum $= 410$; Mean $= 33$, MAD $= 2.76$

b. Minimum $= 2$, Q1 $= 13.5$, Median $= 27.5$, Q3 $= 44$, Maximum $= 439$; Mean $= 54.6$, MAD $= 52.36$

c. Minimum $= 10$, Q1 $= 37.5$, Median $= 62$, Q3 $= 105$, Maximum $= 439$; Mean $= 54.6$, MAD $= 52.36$

2. The heights (rounded to the nearest inch) of the 41 members of the 2012–2013 University of Texas Men's Swimming and Diving Team are shown in the dot plot below.

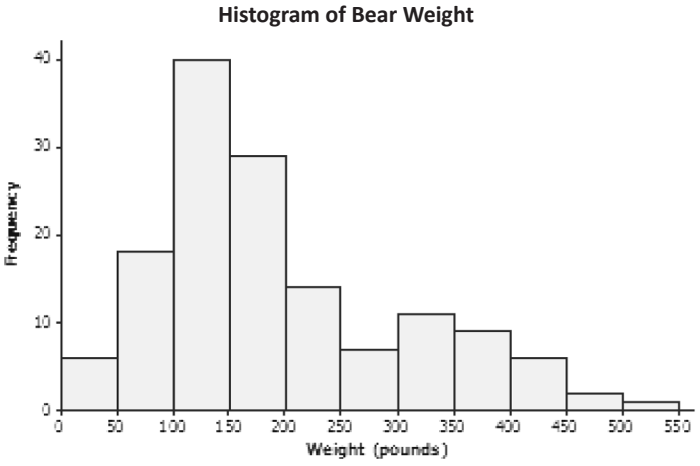


Source: http://www.texassports.com accessed April 30, 2013

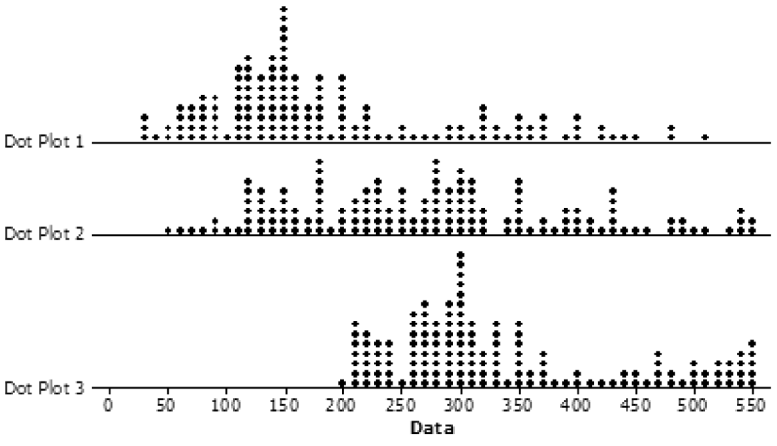
a. Use the dot plot to determine the 5-number summary (minimum, lower quartile, median, upper quartile, and maximum) for the data set.

b. Based on this dot plot, make a histogram of the heights using the following intervals: 66 to <68 inches, 68 to <70 inches, and so on.

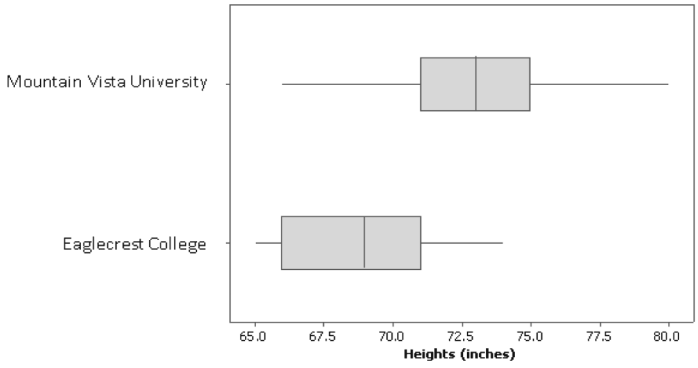
3. Data on the weight (in pounds) of 143 wild bears are summarized in the histogram below.



Which *one* of the three dot plots below could be a dot plot of the bear weight data? Explain how you determined which the correct plot is.



1. College athletic programs are separated into divisions based on school size, available athletic scholarships, and other factors. A researcher wondered if members of swimming and diving programs in Division I (usually large schools that offer athletic scholarships) tend to be taller than the swimmers and divers in Division III programs (usually smaller schools that do not offer athletic scholarships). To begin the investigation, the researcher creates side-by-side box plots for the heights (in inches) of 41 male swimmers and divers at Mountain Vista University (a Division I program) and the heights (in inches) of 10 male swimmers and divers at Eaglecrest College (a Division III program).

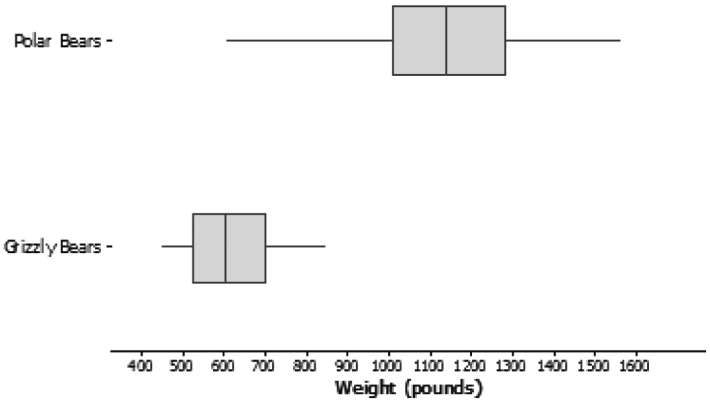


   a. Which data set has the smaller range?

   b. True or false: A swimmer who had a height equal to the median for the Mountain Vista University would be tallerthan the median height of swimmers and divers at Eaglecrest College.

   c. To be thorough, the researcher will examine many other colleges' sports programs to further investigate the claim that members of swimming and diving programs in Division I are generally taller than the swimmers and divers in Division III. But given the graph above, in this initial stage of her research, do you think that the claim might be valid? Carefully support your answer using summary measures or graphical attributes.

2. Data on the weights (in pounds) of 100 polar bears and 50 grizzly bears are summarized in the box plots shown below.



a. True or false: At least one of the polar bears weighed more than the heaviest grizzly bear. Explain how you know.

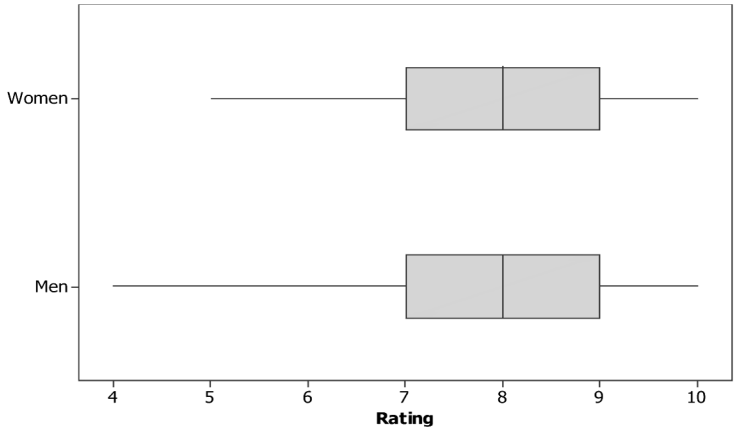
b. True or false: Weight differs more from bear to bear for polar bears than for grizzly bears. Explain how you know.

c. Which type of bear tends to weigh more? Explain.

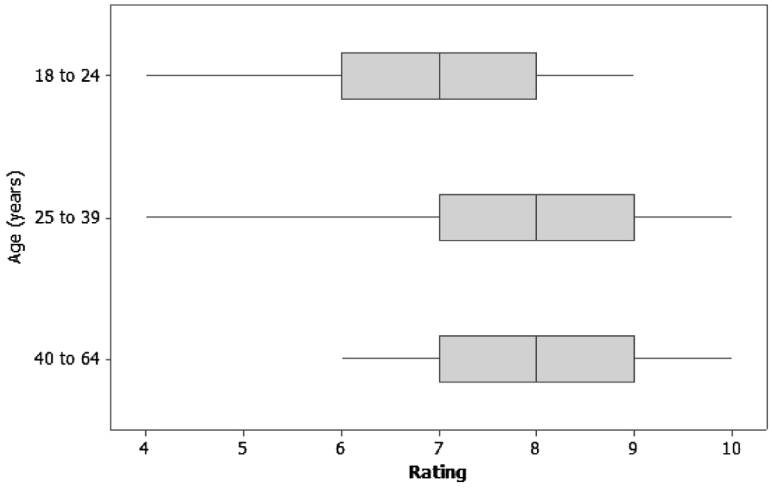
3. Many movie studios rely heavily on viewer data to determine how a movie will be marketed and distributed. Recently, previews of a soon-to-be-released movie were shown to 300 people. Each person was asked to rate the movie on a scale of 0 to 10, with 10 representing "best movie I have ever seen" and 0 representing "worst movie I have ever seen."

   Below are some side-by-side box plots that summarize the ratings by gender and by age.

   For 150 women and 150 men:



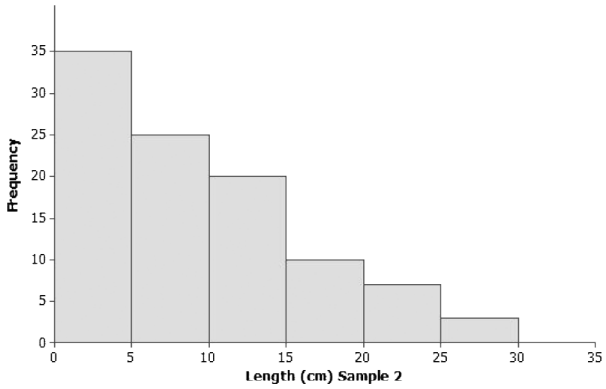
   For 3 age groups:



   a. Does it appear that the men and women rated the film in a similar manner or in a very different manner? Write a few sentences explaining your answer using comparative information about center and variability.

   b. It appears that the film tended to receive better ratings from the older members of the group. Write a few sentences using comparative measures of center and spread or aspects of the graphical displays to justify this claim.

Another sample of Great Lake yellow perch from a different lake was collected. A histogram of the lengths for the fish in this sample is shown below.



1. If the length of a yellow perch is an indicator of its age, how does this second sample differ from the sample you investigated in the exercises? Explain your answer.

2. Does this histogram represent a data distribution that is skewed or that is nearly symmetrical?

3. What measure of center would you use to describe a typical length of a yellow perch in this second sample? Explain your answer.

4. Assume the smallest perch caught was 2 centimeters in length, and the largest perch caught was 29 centimeters in length. Estimate the values in the five-number summary for this sample:

   Minimum (min) value =

   Q1 value =

   Median value =

   Q3 value =

   Maximum (max) value =

5. Based on the shape of this data distribution, do you think the mean length of a yellow perch from this second sample would be greater than, less than, or the same as your estimate of the median? Explain your answer.

6. Estimate the mean value of this data distribution.

7. What is your estimate of a typical length of a yellow perch in this sample? Did you use the mean length from Problem 5 for this estimate? Explain why or why not.

8. Would you use the MAD or the IQR to describe variability in the length of Great Lakes yellow perch in this sample? Estimate the value of the measure of variability that you selected.

In Lesson 17, you posed a statistical question and created a plan to collect data to answer your question. You also constructed graphs and calculated numerical summaries of your data. Review the data collected and your summaries.

Based on directions from your teacher, create a poster or an outline for a presentation using your own data. On your poster, indicate your statistical question. Also, indicate a brief summary of how you collected your data based on the plan you proposed in Lesson 17. Include a graph that shows the shape of the data distribution, along with summary measures of center and variability. Finally, answer your statistical question based on the graphs and the numerical summaries.

Share the poster you will present in Lesson 22 with your teacher. If you are instructed to prepare an outline of the presentation, share your outline with your teacher.

Step 1: What was the statistical question presented on this poster?

Step 2: How were the data collected?

Step 3: What graphs and numerical summaries were used to summarize data?

Describe at least one graph presented on the poster. (For example, was it a dot plot? What was represented on the scale?) What numerical summaries of the data were included (e.g., the mean or the median)? Also, indicate why these particular numerical summaries were selected.

Step 4: Summarize the answer to the statistical question.