

IF AVAILABLE: Students should complete 30 minutes of ALEKS daily too!

Email your teacher & Mr. Sayers for log-in info from 9:30 - 11am or 1pm-2:30 pm.

Email: scott.sayers@richlandone.org keri.mckelvey@richlandone.org

Kevin.fletcher@richlandone.org



6th Grade Suggested Timeline Technology-Free Alternative

Days	Activity
	Math Essentials Workbook <i>Read all the items in the margins and complete the activities as directed.</i>
1-3	Greatest Common Factor and Least Common Multiple (6.NS.4)
4-6	Operations with Fractions (6.NS.1 & 6.NS.2)
7-9	Operations with Decimals (6.NS.2 & 6.NS.3)
10-12	Percents (6.NS.9)
13-15	Ratios and Rates (6.RP.1-3)
16-18	Integers (6.NS.5-7)
19-21	Coordinate Plane and Polygons (6.Ns.8, 6.G.3, & 6.EE.9)
22-24	Measures of Central Tendencies (6.DS.1-5)

All assignments will be **GRADED!**
Please be sure to submit your completed packet **NO LATER THAN** 5 days upon returning to school.

Name _____

**Never
STOP
Learning**

Hi Everyone,

I know this a hard thing for all of us. We miss our friends, some of our teachers, and definitely Ms. McKelvey! Well I miss ALL of you! This is definitely hard for me, but we will get through it, I PROMISE!, and see each other soon.

As you begin to work through the packet for this round, I want you to know that I am here to help you. The following web addresses and links are ways to contact me during this brief period apart. BE MINDFUL, I am not always online so be patient. I am always online Monday – Friday from 10a – 2p, to help you.

You can reach out by joining our class Remind (Find your class period and text the code to 81010

3rd Block: @gh272cf

4th Block: @663hdd6

6th Block: @3ckf478

12th Block: @2fc8fe2

Example: If you go to Ms. McKelvey during 4th Block then you will text the 4th Block code to 81010.

You can also ask questions on Padlet: <https://padlet.com/kerimckelvey1/Bookmarks>, and I'll be able to assist you with your questions.

I will also do 30 Zoom Conferences a week to assist students with new concepts, in the packet. They will be from 7p -7:35p on Wednesday, and Thursday. Below is how your student can log in:

Join Zoom Meeting

<https://us04web.zoom.us/j/3494986548>

Meeting ID: 349 498 6548

Again, if you or your student have questions, please reach out by email, one of the avenues above.

*STUDENTS: READ ALL DIRECTIONS **BEFORE** YOU STRAT WORKING!!!!*

You can use the back of the page to show work.

Thank you,

Ms. Keri M. McKelvey

6th Grade Mathematics

Assistant Volleyball Coach

Assistant Girls Basketball Coach

Assistant Girls Track Coach-CA Johnson High

W.A. Perry Middle School

2600 Barhamville Road

Columbia. SC 29204

Phone: 803-256-6347

Greatest Common Factor

Factors that are shared by two or more numbers are called **common factors**. The greatest of the common factors is called the **greatest common factor** (GCF). There are several different ways to find the GCF of two or more numbers.

Example 1 Find the greatest common factor (GCF) of 56 and 104.

Method 1 List the factors of each number. Then circle the common factors.

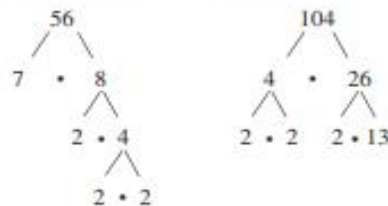
Factors of 56: ①, ②, ④, 7, ⑧, 14, 28, 56

Factors of 104: ①, ②, ④, ⑧, 13, 26, 52, 104

The common factors are 1, 2, 4, and 8. The greatest of these common factors is 8.

► So, the GCF of 56 and 104 is 8.

Method 2 Make a factor tree for each number.



Least Common Multiple

Multiples that are shared by two or more numbers are called **common multiples**. The least of the common multiples is called the **least common multiple** (LCM). There are several different ways to find the LCM of two or more numbers.

Example 1 Find the least common multiple (LCM) of 18 and 30.

Method 1 List the multiples of each number. Then circle the common multiples.

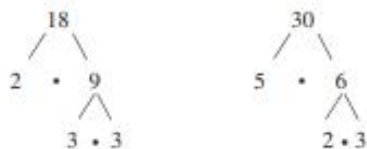
Multiples of 18: 18, 36, 54, 72, ⑨①, 108, 126, 144, 162, ①⑧①

Multiples of 30: 30, 60, ⑨①, 120, 150, ①⑧①, 210

Some common multiples of 18 and 30 are 90 and 180. The least of these common multiples is 90.

► So, the LCM of 18 and 30 is 90.

Method 2 Make a factor tree for each number.



Write the prime factorization of each number. Circle each different factor where it appears the greatest number of times.

$$18 = \textcircled{2} \cdot \textcircled{3} \cdot \textcircled{3}$$

2 appears once in both factorizations, so circle it here.

3 appears more often here, so circle all 3s.

$$30 = 2 \cdot 3 \cdot \textcircled{5}$$

5 appears once. Do not circle the 2s or 3s again.

$$2 \cdot 3 \cdot 3 \cdot 5 = 90$$

Find the product of the circled factors.

► So, the LCM of 18 and 30 is 90.

Directions: Solve each problem using notes from your notebook and above.

Problem 1: Find the mystery number using the clues below. The mystery number is _____.

Darnell is thinking of a mystery number. Use the following clues to determine the number.

Clue 1: The number is divisible by 5 but not divisible by 10.

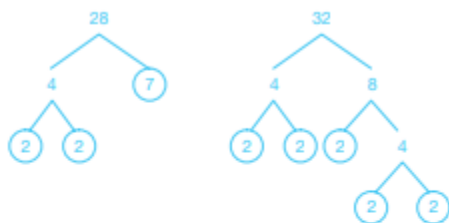
Clue 2: The number is divisible by 9.

Clue 3: The number is a four-digit number.

Clue 4: The number contains only two different digits.

Find the LCM of each problem below. Example provided.

28, 32



$$28 = 2^2 \cdot 7$$

$$32 = 2^5$$

$$\text{LCM} = 2^5 \cdot 7$$

$$= 224$$

The LCM of 28 and 32 is 224.

40, 100

Emilio's family volunteers at the local soup kitchen every 30 days. Emilio has swimming lessons every 9 days. He has both activities this Saturday. When will he have both activities again on the same day?

Find the factors of each number. Use the examples for help.

25, 45

8, 27, 35

Factors of 25: 1, 5, 25

Factors of 45: 1, 5, 9, 45

The greatest common factor of 25

GCF, LCM, PRIME, & COMPOSITE CHOICE BOARD

PLEASE SELECT 3 OF THE ACTIVITIES BELOW TO COMPLETE (ONE FROM EACH ROW)

Write a RAP explaining how to find the greatest common factor of two numbers	Create a KAHOOT over how to find the greatest common factor of two numbers	Create a GAME with at least 10 problems over how to find the greatest common factor of two numbers
Make a GOOGLE SLIDESHOW over how to find the prime factorization of a number	Design a PAGE from a math book showing how to find the prime factorization of a number	Make a POSTER (flipchart) showing how to find the prime factorization of a number
Create and solve 4 WORD PROBLEMS over how to find the least common multiple of two numbers	Create a WORKSHEET with an answer key over how to find the least common multiple of two numbers	Write a LETTER to a friend explaining step-by-step how to find the least common multiple of two numbers

Multiplying and Dividing Fractions

To multiply two fractions, multiply the numerators and multiply the denominators.

Multiplying Fractions
$\frac{a}{b} \cdot \frac{c}{d} = \frac{a \cdot c}{b \cdot d}$, where $b, d \neq 0$

Example 1 Find $\frac{2}{5} \cdot \frac{3}{8}$.

$$\begin{aligned}\frac{2}{5} \cdot \frac{3}{8} &= \frac{2 \cdot 3}{5 \cdot 8} && \text{Multiply the numerators.} \\ &&& \text{Multiply the denominators.} \\ &= \frac{2 \cdot 3}{8 \cdot \cancel{4}} && \text{Divide out common factors.} \\ &= \frac{3}{20} && \text{Simplify.}\end{aligned}$$

Example 2 Find $5\frac{1}{2} \cdot \frac{3}{4}$.

$$\begin{aligned}5\frac{1}{2} \cdot \frac{3}{4} &= \frac{11}{2} \cdot \frac{3}{4} && \text{Rewrite } 5\frac{1}{2} \text{ as } \frac{11}{2}. \\ &= \frac{11 \cdot 3}{2 \cdot 4} && \text{Multiply the numerators.} \\ &&& \text{Multiply the denominators.} \\ &= \frac{33}{8}, \text{ or } 4\frac{1}{8} && \text{Simplify.}\end{aligned}$$

Two numbers whose product is 1 are **reciprocals**. To write the reciprocal of a number, write the number as a fraction. Then invert the fraction. Every number except 0 has a reciprocal.

To divide a number by a fraction, multiply the number by the reciprocal of the fraction.

Dividing Fractions
$\frac{a}{b} \div \frac{c}{d} = \frac{a}{b} \cdot \frac{d}{c} = \frac{a \cdot d}{b \cdot c}$, where $b, c, d \neq 0$

Example 3 Find $\frac{3}{7} \div \frac{5}{6}$.

$$\begin{aligned}\frac{3}{7} \div \frac{5}{6} &= \frac{3}{7} \cdot \frac{6}{5} && \text{Multiply by the reciprocal} \\ &&& \text{of } \frac{5}{6}, \text{ which is } \frac{6}{5}. \\ &= \frac{3 \cdot 6}{7 \cdot 5} && \text{Multiply.} \\ &= \frac{18}{35} && \text{Simplify.}\end{aligned}$$

Example 4 Find $8 \div 2\frac{1}{3}$.

$$\begin{aligned}8 \div 2\frac{1}{3} &= 8 \div \frac{7}{3} && \text{Rewrite } 2\frac{1}{3} \text{ as } \frac{7}{3}. \\ &= 8 \cdot \frac{3}{7} && \text{Multiply by the reciprocal} \\ &&& \text{of } \frac{7}{3}, \text{ which is } \frac{3}{7}. \\ &= \frac{8 \cdot 3}{7} && \text{Multiply.} \\ &= \frac{24}{7}, \text{ or } 3\frac{3}{7} && \text{Simplify.}\end{aligned}$$

Calculate each product or quotient. Simplify if necessary.

$$\begin{aligned}\frac{3}{5} \times \frac{4}{7} \\ \frac{3}{5} \times \frac{4}{7} &= \frac{12}{35}\end{aligned}$$

15. $\frac{7}{8} \div \frac{1}{4}$

16. $\frac{3}{4} \div \frac{1}{6}$

$$\frac{2}{5} \times \frac{10}{13}$$

17. $\frac{15}{16} \div \frac{3}{4}$

18. $\frac{7}{12} \div \frac{1}{3}$

Carmen has 5 pints of strawberries. She needs $\frac{3}{2}$ pints to make a batch of strawberry ice cream. How many batches of strawberry ice cream can Carmen make?

DIVIDING FRACTIONS CHOICE BOARD

PLEASE SELECT 3 OF THE ACTIVITIES BELOW TO COMPLETE (ONE FROM EACH ROW)

Write a RAP explaining how to divide fractions	Create a KAHOOT over fraction division	Create a GAME with at least 10 problems over dividing fractions
Make a GOOGLE SLIDESHOW over how to divide fractions using models	Design a PAGE from a math book showing how to divide fractions with models	Make a POSTER (flipchart) showing how to divide fractions using models
Create and solve 4 WORD PROBLEMS over dividing fractions	Create a WORKSHEET with an answer key over dividing fractions	Write a LETTER to a friend explaining step-by-step how to solve a fraction division problem.

Key Concept and Vocabulary

$$\begin{array}{r} 5.7 \\ + 3.36 \\ \hline 9.06 \end{array}$$

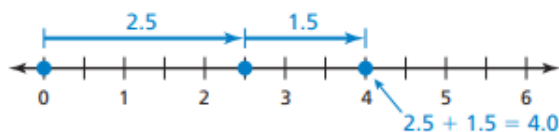
Align on decimal point.

$$\begin{array}{r} 12.72 \\ - 3.84 \\ \hline 8.88 \end{array}$$

Adding and Subtracting



Visual Model



135.826 - 57.12

18. 25.8 - 14.083

12.89 + 7.45 - 3.005

20. 68.52 - 12.708 + 3.92

Jada and Tonya ran a 400-meter race. Jada ran the race in 75.2 seconds. Tonya ran the race in 69.07 seconds. How much faster did Tonya run the race?

Kata wants to purchase three items at a department store. The items she wants to buy are jeans for \$24.99, a T-shirt for \$14.99 and a pair of earrings for \$7.49. If Kata gives the cashier \$50, how much change will she get?



Key Idea

Multiplying Decimals by Decimals

Words Multiply as you would with whole numbers. Then add the number of decimal places in the factors. This sum gives you the number of decimal places in the product.

Numbers

4.716	←	3 decimal places
× 0.2	←	+ 1 decimal place
0.9432	←	4 decimal places

Key Concept and Vocabulary

5.231.408 → 52314.08

↑ ↑

Move decimals
1 place.

6.04

52314.08

312

2 08

2 08

0



Calculate the product.

15. 1.05×8.3

16. 6.14×7.5

Calculate the quotient.

27. $59.52 \div 6.4$

28. $7.524 \div 4.4$

METRIC SYSTEM There are 2.54 centimeters in one inch. How many inches are there in 51.78 centimeters? Round your answer to the nearest tenth of an inch. _____

DECIMAL COMPUTATION CHOICE BOARD

PLEASE SELECT 3 OF THE ACTIVITIES BELOW TO COMPLETE (ONE FROM EACH ROW)

Write a RAP explaining how to multiply and divide decimals	Create a KAHOOT over multiplying and dividing decimals	Create a GAME with at least 10 problems over multiplying and dividing decimals
Make a GOOGLE SLIDESHOW over how to add and subtract decimals	Design a PAGE from a math book showing how to add and subtract decimals	Make a POSTER (flipchart) showing how to add and subtract decimals
Create and solve 4 WORD PROBLEMS over decimal computation	Create a WORKSHEET with an answer key over decimal computation	Write a LETTER to a friend explaining step-by-step how to solve a decimal addition, subtraction, multiplication, and division problem

Calculating with Percents

To represent “ a is p percent of w ,” use the **percent proportion** or the **percent equation**.

Percent Proportion	Percent Equation
$\frac{a}{w} = \frac{p}{100}$	$a = p \cdot w$

Example 1 Answer each question.

a. What percent of 40 is 18?

percent proportion: $\frac{18}{40} = \frac{p}{100}$

$$1800 = 40p$$

$$45 = p$$

percent equation: $18 = p \cdot 40$

$$0.45 = p$$

► So, 45% of 40 is 18.

b. What number is 32% of 75?

$$\frac{a}{75} = \frac{32}{100}$$

$$100a = 2400$$

$$a = 24$$

$$a = 0.32 \cdot 75$$

$$a = 24$$

► So, 24 is 32% of 75.

c. 125% of what number is 80?

$$\frac{80}{w} = \frac{125}{100}$$

$$8000 = 125w$$

$$64 = w$$

$$80 = 1.25 \cdot w$$

$$64 = w$$

► So, 125% of 64 is 80.

A **percent of change** is the percent that a quantity changes from the original amount.

$$\text{percent of change} = \frac{\text{amount of change}}{\text{original amount}}$$

Example 2 Find the percent of change.

a. Your number of hours worked increases from 24 hours to 42 hours.

$$\frac{42 - 24}{24} = \frac{18}{24} = 0.75$$

► The change is a 75% increase.

b. A price decreases from \$25.75 to \$15.50.

$$\frac{25.75 - 15.50}{25.75} = \frac{10.25}{25.75} \approx 0.40$$

► The change is about a 40% decrease.

MAKE SURE YOU ARE UPDATING YOUR NOTES!

Describe how you would use this knowledge in the real-world?

Write each decimal as a fraction. 0.28

Write each fraction as a percent. $\frac{5}{8}$

Calculate each percent.

. 63% of 18

4% of 115

PERCENT OF A NUMBER CHOICE BOARD

PLEASE SELECT 3 OF THE ACTIVITIES BELOW TO COMPLETE (ONE FROM EACH ROW)

Write a RAP explaining how to find the missing percent	Create a KAHOOT over finding the missing percent	Create a GAME with at least 10 problems over finding the missing percent
Make a GOOGLE SLIDESHOW over finding the missing part in a proportion	Design a PAGE from a math book showing how to find the missing part in a proportion	Make a POSTER (flipchart) showing how to find the missing part in a proportion
Create and solve 4 WORD PROBLEMS over finding the missing whole in a proportion	Create a WORKSHEET with an answer key over finding the missing whole in a proportion	Write a LETTER to a friend explaining step-by-step how to finding the missing whole in a proportion

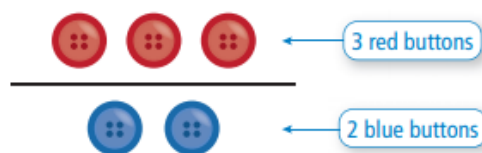
Key Concept and Vocabulary

The ratio of 3 red buttons to 2 blue buttons can be written in three ways:

$$\frac{3}{2}, 3 \text{ to } 2, \text{ or } 3:2$$



Visual Model



A **ratio** is a comparison of two quantities using division.

$$\frac{3}{4}, 3 \text{ to } 4, 3:4$$

A **rate** is a ratio of two quantities with different units.

$$\frac{60 \text{ miles}}{2 \text{ hours}}$$

A rate with a denominator of 1 is called a **unit rate**.

$$\frac{30 \text{ miles}}{1 \text{ hour}}$$

Finding Ratios and Rates

There are 45 males and 60 females in a car on the Miami Metrorail. The Metrorail travels 2.5 miles in 5 minutes.

- Find the ratio of males to females.
- Find the speed of the Metrorail.

a. $\frac{\text{males}}{\text{females}} = \frac{45}{60} = \frac{3}{4}$

❖ The ratio of males to females is $\frac{3}{4}$.

b. $2.5 \text{ miles in } 5 \text{ minutes} = \frac{2.5 \text{ mi}}{5 \text{ min}} = \frac{2.5 \text{ mi} \div 5}{5 \text{ min} \div 5} = \frac{0.5 \text{ mi}}{1 \text{ min}}$

❖ The speed is 0.5 mile per minute.

Finding a Rate from a Table

The table shows the amount of money you can raise by walking for a charity. Find your unit rate in dollars per mile.

Distance (miles)	2	4	6	8
Money (dollars)	24	48	72	96

$\xrightarrow{+2} \quad \xrightarrow{+2} \quad \xrightarrow{+2}$
 $\xleftarrow{+24} \quad \xleftarrow{+24} \quad \xleftarrow{+24}$

Use the table to find the unit rate.

$$\begin{aligned} \frac{\text{change in money}}{\text{change in distance}} &= \frac{\$24}{2 \text{ mi}} \\ &= \frac{\$12}{1 \text{ mi}} \end{aligned}$$

The money raised increases by \$24 every 2 miles.

Simplify.

❖ Your unit rate is \$12 per mile.

Each model shows a ratio of girls to boys. Which models show the same ratio?



In a basket, 3 out of every 4 eggs are cracked. How many eggs are cracked if there are a total of 28 eggs in the basket?

Scale up each ratio to complete the proportion.

$$\frac{40 \text{ apples}}{3 \text{ baskets}} = \frac{?}{12 \text{ baskets}}$$

$$\frac{12 \text{ inches}}{1 \text{ foot}} = \frac{?}{18 \text{ feet}}$$

Scale down each ration to complete the proportion.

$$\frac{\$40}{15 \text{ gallons}} = \frac{?}{3 \text{ gallons}}$$

$$\frac{280 \text{ beats}}{4 \text{ seconds}} = \frac{70 \text{ beats}}{?}$$

Complete each ratio table. Show your calculations.

White paint (oz)	2	6	8	
Red paint (oz)	3			36

Create and complete a ratio table for the following problem. Show your calculations.

Olivia is celebrating her birthday at a movie theater. She invites 12 friends for a movie and popcorn. She is told that 1 large bucket of popcorn can be shared by 3 people. How many buckets of popcorn does Olivia need?

Real-world Application:

The US Government has charged you with creating a vaccination for COVID-19 (Coronavirus). Create a ratio table of ingredients to make your vaccine.

RATIO PROBLEMS CHOICE BOARD

PLEASE SELECT 3 OF THE ACTIVITIES BELOW TO COMPLETE (ONE FROM EACH ROW)

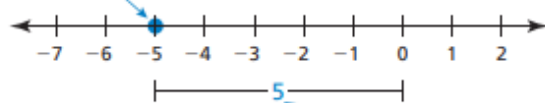
Write a RAP explaining how to find ratios	Create a KAHOOT over finding ratios (10 problems)	Create a GAME with at least 10 problems over finding ratios
Make a GOOGLE SLIDESHOW over how to complete a ratio table	Design a PAGE from a math book showing how to find equivalent ratios	Make a POSTER (flipchart) showing how to complete a ratio table
Create and solve 4 WORD PROBLEMS over ratio problems	Create a WORKSHEET with an answer key over solving ratio problems	Write a LETTER to a friend explaining step-by-step how to solve a ratio word problem.

Adding and Subtracting Integers

The **absolute value** of an integer is the distance between the number and 0 on a number line. The absolute value of a number x is written as $|x|$.

Example 1 Find the absolute value of -5 .

Graph -5 on a number line.



The distance between -5 and 0 is 5.

► So, $|-5| = 5$.

Rules for Adding and Subtracting Integers

Adding:	To add integers with the <i>same</i> sign, add the absolute values of the integers. Then use the common sign. To add integers with <i>different</i> signs, subtract the lesser absolute value from the greater absolute value. Then use the sign of the integer with the greater absolute value.
Subtracting:	To subtract an integer, add its opposite.

Example 2 Find (a) $-3 + (-8)$ and (b) $-9 + 6$.

a. $-3 + (-8) = -11$ Add $|-3|$ and $|-8|$.
Use the common sign.

► The sum is -11 .

b. $-9 + 6 = -3$ $|-9| > |6|$. So, subtract $|6|$ from $|-9|$.
Use the sign of -9 .

► The sum is -3 .

Example 3 Find (a) $5 - (-12)$ and (b) $1 - 7$.

a. $5 - (-12) = 5 + 12$ Add the opposite of -12 .
 $= 17$ Add.

► The difference is 17.

b. $1 - 7 = 1 + (-7)$ Add the opposite of 7.
 $= -6$ Add.

► The difference is -6 .

Multiplying and Dividing Integers

Rules for Multiplying and Dividing Integers

Multiplying and Dividing:	The product or quotient of two integers with the <i>same</i> sign is <i>positive</i> . The product or quotient of two integers with <i>different</i> signs is <i>negative</i> .
----------------------------------	--

Example 5 Find (a) $-7 \cdot (-1)$ and (b) $-9 \cdot 4$.

a. $-7 \cdot (-1) = 7$ The integers have the same sign,
so the product is positive.

► The product is 7.

b. $-9 \cdot 4 = -36$ The integers have different signs,
so the product is negative.

► The product is -36 .

Example 6 Find (a) $18 \div (-2)$ and (b) $-25 \div (-5)$.

a. $18 \div (-2) = -9$ The integers have different signs,
so the quotient is negative.

► The quotient is -9 .

b. $-25 \div (-5) = 5$ The integers have the same sign,
so the quotient is positive.

► The quotient is 5.

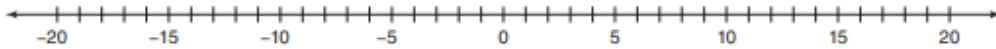
Write a negative or positive for each description.

The company posted a yearly profit of one million dollars.

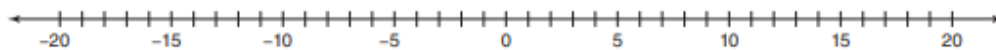
The temperature is seven degrees below zero Fahrenheit.

Plot each integer on the number line.

-11

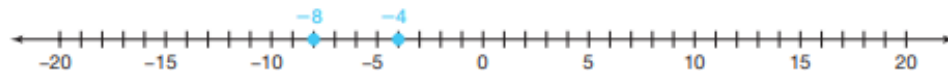


8

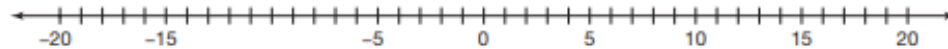


Plot each integer on the number line. Then, place a $>$, $<$, or $=$ symbol to make the number sentence true.

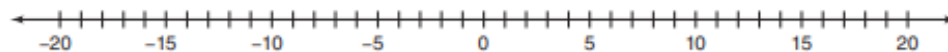
$-4 \square -8$



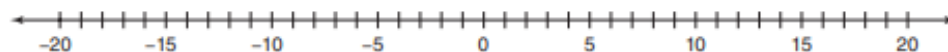
$6 \square -10$



$-16 \square -16$



$-18 \square -11$



Determine the absolute value of each integer to complete the number sentence.

$$|-9| = \underline{\hspace{2cm}}$$

$$14. |4| = \underline{\hspace{2cm}}$$

$$|35| = \underline{\hspace{2cm}}$$

$$16. |-12| = \underline{\hspace{2cm}}$$

$$|-28| = \underline{\hspace{2cm}}$$

$$18. |72| = \underline{\hspace{2cm}}$$

Find the absolute value of the following.

$| -8 |$

$| 18 - (-11) |$

Evaluate

$4 - 9$

$-33 \div (-3)$

$-8 + 20$

$-15(8)$

$-34 - (-25)$

$240 \div (-8)$

Use the ratio table below to answer the following questions.

Days	1	2	3	4	5	6	7	8
Gauge Reading	0.5	-1.3	3.7	4.2	2.1	-0.9	-2.4	5.6

Calculate the gain or loss of water in the rain gauge between days 2 and 3. Express the change in the water level in the gauge as a positive or negative number.

Calculate the gain or loss of water in the rain gauge between days 3 and 4. Express the change in the water level in the gauge as a positive or negative number.

Calculate the gain or loss of water in the rain gauge between days 6 and 7. Express the change in the water level in the gauge as a positive or negative number.

Real-world application:

Write an integer that represents the following situation.

SC DHEC has announced that 44 additional COVID-19 cases.

INTEGERS AND RATIONAL NUMBERS CHOICE BOARD

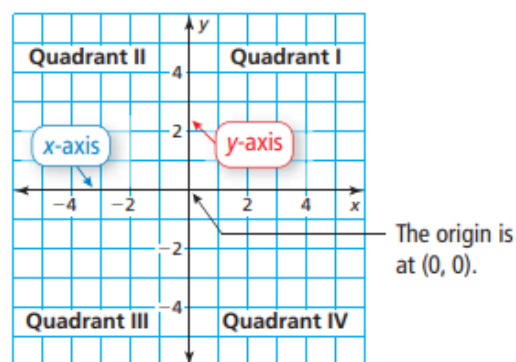
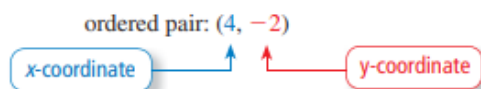
PLEASE SELECT 3 OF THE ACTIVITIES BELOW TO COMPLETE (ONE FROM EACH ROW)

Write a RAP explaining how to interpret and order integers	Create a KAHOOT over interpreting and ordering integers	Create a GAME with at least 10 problems over interpreting and ordering integers
Make a GOOGLE SLIDESHOW over classifying rational numbers	Design a PAGE from a math book showing how to classify rational numbers	Make a POSTER (flipchart) showing how to classify rational numbers
Create and solve 4 WORD PROBLEMS over plotting, comparing, and ordering rational numbers	Create a WORKSHEET with an answer key over plotting, comparing, and ordering rational numbers	Write a LETTER to a friend explaining step-by-step over plotting, comparing, and ordering rational numbers

The Coordinate Plane

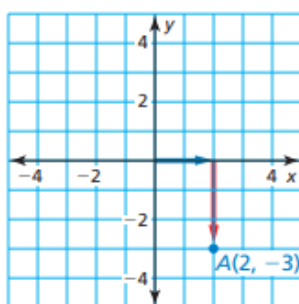
A **coordinate plane** is formed by the intersection of a horizontal number line and a vertical number line. The number lines intersect at the **origin** and separate the coordinate plane into four regions called **quadrants**.

An **ordered pair** is used to locate a point in a coordinate plane.

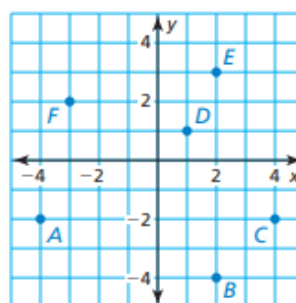


Example 1 Plot the point $A(2, -3)$ in a coordinate plane. Describe the location of the point.

Start at the origin. Move 2 units **right** and 3 units **down**. Then plot the point. The point is in Quadrant IV.



Example 2 What ordered pair corresponds to point A?



Point A is 4 units to the left of the origin and 2 units down. So, the x -coordinate is -4 and the y -coordinate is -2 .

► The ordered pair $(-4, -2)$ corresponds to point A.

Write the coordinate pair for each point. Determine in which quadrant the point lies or on which axis.

Point A (2, 5) Quadrant I

Point B

Point C

Point D

Point E

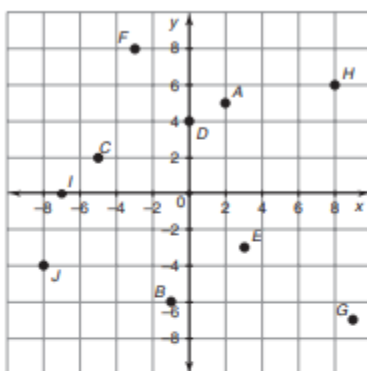
Point F

Point G

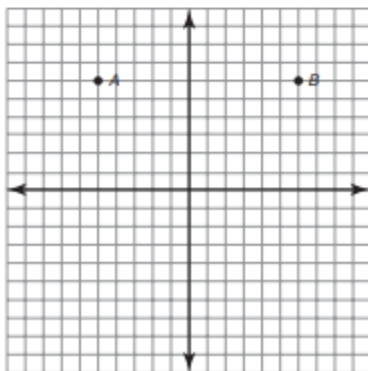
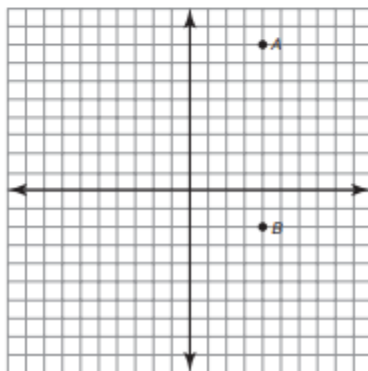
Point H

Point I

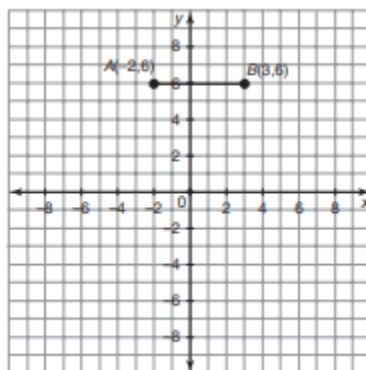
Point J



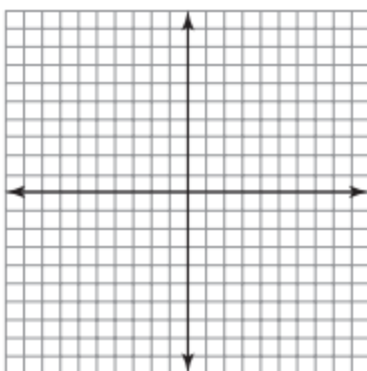
Points A and B are labeled on each coordinate plane. Identify the ordered pair associated with each point. Write an absolute value equation to calculate the distance between point A and point B.



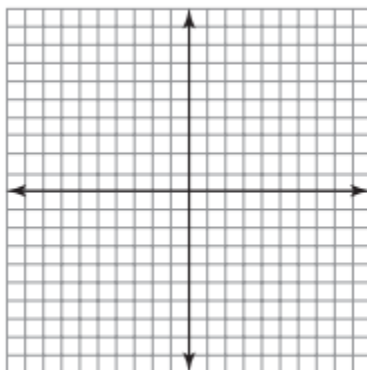
Line segment AB is plotted on the coordinate plane. Plot and label points C and D so that parallelogram ABCD with a height of 2 units is formed. Draw the parallelogram.



x	y
1	3
1	7
-3	5
-3	1



Plot and identify 5 points that are the vertices of a pentagon. Draw the pentagon.



What Is The Number?

Directions: Plot the ordered pair of numbers on a graph in the order they are listed connecting them with line segments as you plot them.

Start a new line after the word "STOP".

(-14.5, -14)	(-11.5, 4)	(-3.5, -8)	(0, 5)	(14, -9.5)	(-12.5, 12)	(15.5, 5.5)
(-16, -11)	(-10.5, 3)	(-5.5, -8)	(2, 7)	(13.5, -9)	(-11.5, 11)	(15.5, 4.5)
(-15.5, -7)	(-10.5, 1)	(-5.5, -8.5)	(5, 8.5)	(14, -8.5)	(-11.5, 10)	(17, 4.5)
(-16, -4)	(-12, 0)	(-5, -9)	(5, 9)	(14, -8)	STOP	(15.5, 5.5)
(-15.25, -1.5)	(-15, 0)	(-5.5, -9.5)	(4.5, 10)	(12, -8)		STOP
(-15.5, -1.5)	(-15, -0.5)	(-5.75, -9.5)	(3.5, 10)	(10, -6)	(-4.5, 4.5)	
(-16, -1)	(-14.5, -1)	STOP	(3, 9)	(9, -3)	(-4.5, 5)	(17.5, 4)
(-15.5, -0.5)	(-15, -1.5)		(2, 8)	(9, -1)	(-3.5, 5)	(18.5, 3.5)
(-15.5, 0)	(-15.25, -1.5)	(-6, 3)	(1, 8)	(9.5, 1)	(-2.5, 4.5)	(19, 2.5)
(-19, 0)	STOP	(-5, 3)	(0, 9)	(9.5, 2)	(-4.5, 4.5)	STOP
(-20.5, 2)		(-4, 2)	(0, 11)	(11, 4)	STOP	
(-20.5, 3)	(-5, -15)	(-3.5, 1)	(1, 13)	(13, 5.5)		(-12.5, 3.5)
(-20, 5)	(-6, -14)	(-3.5, -2)	(3, 14)	(15, 6)	(-2, 4)	(-11.5, 3.5)
(-18, 7)	(-5, -12)	(-4, -4)	(5, 14)	(17, 5.5)	(-1, 3)	(-11, 3)
(-15, 8.5)	(-5.75, -9.5)	(-5, -5)	(7, 13.5)	(19, 4)	(-1, 2)	STOP
(-15, 9)	(-6, -9.5)	(-6, -5)	(8, 13)	(20, 2)	STOP	
(-15.5, 10)	(-6.5, -9)	(-7, -4)	(9, 11)	(20.5, -1)		(7.5, 3.5)
(-16.5, 10)	(-6, -8.5)	(-7.5, -2)	(9, 8)	(20.5, -3)	(14, 3)	(8.5, 3.5)
(-17, 9)	(-6, -8)	(-7.5, 1)	(7, 6)	(19, -6)	(15, 3)	(9, 3)
(-18, 8)	(-8, -8)	(-7, 2)	(5, 4.5)	(16.5, -8)	(16, 2)	STOP
(-19, 8)	(-10, -6)	(-6, 3)	(4.5, 3.5)	(14.5, -8)	(16.5, 1)	
(-20, 9)	(-11, -3)	STOP	(6, 4)	(14.5, -8.5)	(16.5, -2)	(-14.5, 13.5)
(-20, 11)	(-11, -1)		(8.5, 4)	(15, -9)	(16, -4)	(-14.5, 12.5)
(-19, 13)	(-10.5, 1)	(4.5, -14)	(9.5, 3)	(14.5, -9.5)	(15, -5)	(-13, 12.5)
(-17, 14)	(-10.5, 2)	(5, -12)	(9.5, 1)	(14.25, -9.5)	(14, -5)	(-14.5, 13.5)
(-15, 14)	(-9, 4)	(4.5, -8)	(8, 0)	STOP	(13, -4)	STOP
(-13, 13.5)	(-7, 5.5)	(5.5, -5)	(5, 0)			
(-12, 13)	(-5, 6)	(4.75, -1.5)	(5, -0.5)			
(-11, 11)	(-3, 5.5)	(4.5, -1.5)	(5.5, -1)			
(-11, 8)	(-1, 4)	(4, -1)	(5, -1.5)			
(-13, 6)	(0, 2)	(4.5, -0.5)	(4.75, -1.5)			
(-15, 4.5)	(0.5, -1)	(4.5, 0)	STOP	(5, 12.5)	(12.5, 1)	(7.5, 12)
(-15.5, 3.5)	(0.5, -3)	(1, 0)		(5, 13)	(14, 3)	(8, 11)
(-14, 4)	(-1, -6)	(-0.5, 3)	(14, -15)	(6, 13)	STOP	(8, 10)
			(14.5, -14)	(7, 12)		STOP
			(14, -12)	(6, 12.5)		
			(14.25, -9.5)	(5, 12.5)		
				STOP		

Measures of Center

A **measure of center** is a measure that represents the center, or typical value, of a data set. The *mean*, *median*, and *mode* are measures of center.

Mean	Median	Mode
The mean of a numerical data set is the sum of the data divided by the number of data values. The symbol \bar{x} represents the mean. It is read as "x-bar."	The median of a numerical data set is the middle number when the values are written in numerical order. When a data set has an even number of values, the median is the mean of the two middle values.	The mode of a data set is the value or values that occur most often. There may be one mode, no mode, or more than one mode. Mode is the only measure of center that can represent a nonnumerical data set.

Example 1 The table shows the sizes (in kilobytes) of emails in your inbox.

- Find the mean, median, and model of the email sizes.
- Which measure of center best represent the data? Explain.

Email Sizes (kilobytes)				
1.5	13	1.8	1.9	9.1
2.4	2.8	9.2	2	11
5.6	5	4.9	5.5	11

a. Mean $\bar{x} = \frac{1.5 + 13 + 1.8 + \dots + 5.5 + 11}{15} = 5.78$

Median 1.5, 1.8, 1.9, 2, 2.4, 2.8, 4.9, 5, 5.5, 5.6, 9.1, 9.2, 11, 11, 13 **Order the data.**

↑
middle value

Mode 1.5, 1.8, 1.9, 2, 2.4, 2.8, 4.9, 5, 5.5, 5.6, 9.1, 9.2, 11, 11, 13 **11 occurs most often.**

► The mean is 5.78 kilobytes, the median is 5 kilobytes, and the mode is 11 kilobytes.

- The median best represents the data. The mean and mode are both greater than most of the data.

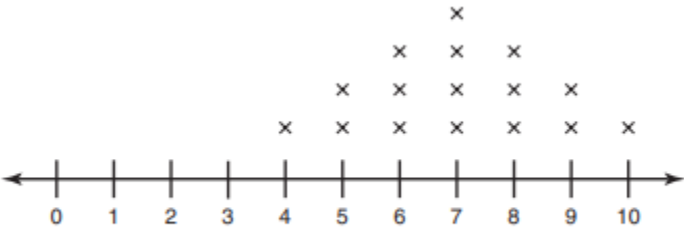
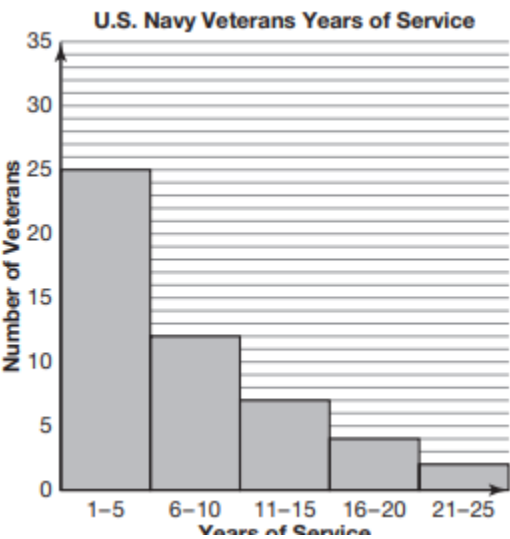
Find the measures of central tendencies (mean, median, and mode) for each data set.

34, 38, 42, 29, 51, 43, 60, 42, 35, 48, 45, 54,
46, 26, 35, 44, 50, 40, 62, 55

32, 39, 41, 50, 25, 44, 38, 29, 40, 52, 34, 37, 37,
42, 27, 45, 46, 59, 35, 26

2, 0, 1, 4, 1, 0, 0, 3, 0, 5, 7, 0, 1,
3, 2, 4, 0, 8, 1, 2

Identify the data distribution in the given plot as symmetric, skewed right or skewed left. Identify the type of graph.



Stem	Leaves
0	7 8
1	2 4 8
2	1 1 6 8
3	0 2 3
4	2 3

Key: 1|2 = 12

Use the data set to create frequency tables or graph.

Test Scores for Mr. Watson's Math Test	
Test Score	Frequency (<i>f</i>)
61-70	4
71-80	7
81-90	9
91-100	8

These data represent the number of roller coasters at several major theme parks: 12, 15, 10, 13, 9, 17, 15, 7, 9, 10, 16, 12, 13, 8, 14, 9, 7, 13, and 15. Use 7–9 as the first interval.

Measures of Central Tendency Choice Board

Directions: The only rule is that you must make a tic-tac-toe that goes through the center square.

<p>Find the mean, median, mode, and range:</p> <p>1) 25.3, 14.7, 16.5, 18.3, 14.7, 8.5</p> <p>2) 11, 18, 14, 16, 14, 16, 16</p>	<p>Define the following words:</p> <ol style="list-style-type: none">1. Mean2. Mode3. Median4. Range5. Box and Whisker Plot	<p>Write a real world situation that would involve finding the mean of a set of data.</p>
<p>Create a <u>foldable</u> that uses the definition of the mean, mode, median, and range give an example of each.</p> 	<p>Review:</p> <p>Order the following numbers:</p> <ol style="list-style-type: none">1. 4.5, 32, 4.65, 7.9, 5.2, -2.62. 3.6, -2.3, -4.5, 8.6, 8.7	<p>Find the mean, median, mode, and range:</p> <p>1) 25.3, 14.7, 2.3, 4, 6.1, 18, 14, 16</p> <p>2) 11, 25, 63, 98, 101, 2, 63, 98</p>
<p>Create a <u>poster</u> explaining the differences in all four measures of central tendency.</p> <p>Must be Colorful</p>	<p>Error Analysis:</p> <p>1. Find the mode: 3, 9, 18, 9, 3, 18, 23, 25 Answer: 3 <i>Rework the problems. Write a sentence explaining the error</i></p> <p>2. What do you do if you have 2 numbers in the middle when looking for the median?</p>	<p>Create a 10 question <u>quiz</u> on the measures of central tendency. Include an answer key.</p> 