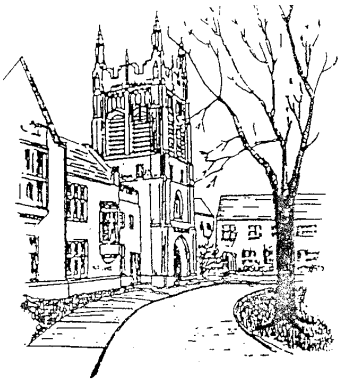

Princeton High School

Mathematics Department

Grades 6-8 and Algebra 1 Summer Assignment

PACKET IS OPTIONAL

Summer assignment vision and purpose: The Mathematics Department of Princeton Public Schools aims to build confidence and competence in students as they strengthen their mathematical understanding. As such, students can complete the summer assignment in preparation for the coming school year. Success in mathematics is dependent on comprehending critical concepts. Such concepts will be extended and applied in more challenging contexts in successive years. For this reason, the department is supporting and providing summer assignments for students. These assignments will serve as a reinforcement of previously learned skills.

Directions: Please complete all of the following questions**.** ***Be sure to show all of your work and attach all completed work on additional pages. All graphs should be completed on graph paper.*** Questions are divided into subgroups based on skill and concept. Some procedures and examples have been provided to help reinforce or remind you of previously covered material. Also, please be sure to complete the following information:

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Rising Grade 6

Summer Math

Packet

Name:

Find the median.

5, 12, 18, 7, 24, 16

Compare using <, >, or =.

a) 0.432 ____ 0.4310

b) 0.199 ____ 0.2

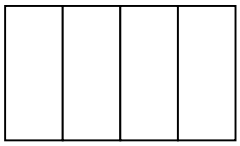
Create a word problem for this open statement.

$72 \div n = 12$

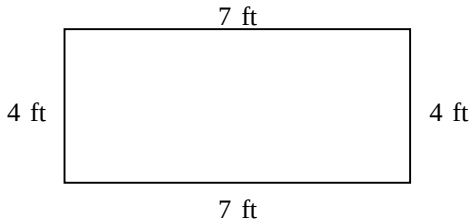
Solve.

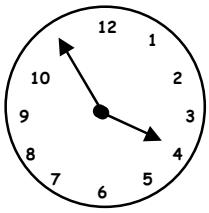
$3\overline{)4.185}$

Shade in the parts to show 25%.



Find the area of the rectangle.





What time does the clock show?

a) _____

What time will it be 3 hours and 45 minutes from that time shown on the clock?

b) _____

Decide whether to use area or perimeter.

If Ana wants to frame a poster that is 13 in. high and 21 in. wide, how much framing material will she need?

She will need to find the _____.

Ana needs _____ of material.

Add.

$$\frac{1}{3} + \frac{4}{6} =$$

Write the answer in lowest terms.

Write a word problem that requires division to solve and uses the numbers 32 and 8 in the problem. Be sure to give an answer.

Name:

Name the **place** of the underlined digit.

a. 3.42**6**8 _____

b. 79.5**4**13 _____

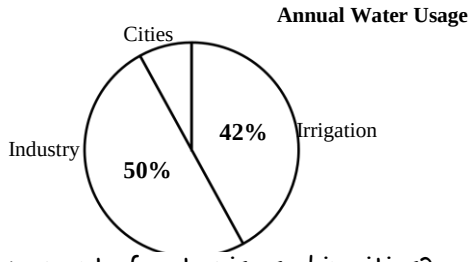
c. 7**0**4, 582 _____

Tammy has 3 older sisters. Veronica is the oldest. If the sum of the four girls' ages is 60, and if her sisters' ages are 18, 16, and 15, how old is Tammy?

Find the product.

3.09 x 2.3= _____

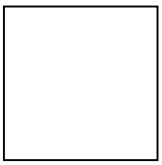
Ms. James collected 7,344 eggs from her hen house. How many dozen eggs did she gather?



What percent of water is used in cities? _____

How do you know?

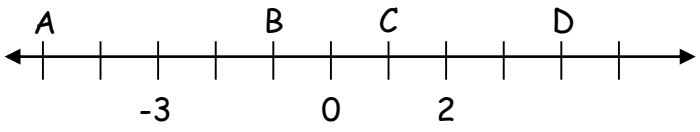
The angle at the corner of a square measures _____ degrees and is called a _____ angle.



Mr. Harris is planning a garden. He needs to buy enough bricks to go around his garden. Using the diagram, find the perimeter.

Find the mean and mode in this set of data.

Set	**Mean**	**Mode**
1, 16, 12, 11, 12, 14		



Identify the value of the following points:

A = B = C = D =

Is figure A congruent to figure B? Explain your answer.

Name:

Solve. Write your answer in lowest terms. $4\frac{3}{8} + 2\frac{1}{8} =$	List all of the factors of the following numbers. 10 7 20 Which of the number(s) are prime? Which of the number(s) are composite
How many lines of symmetry does an equilateral triangle have?	Coach Higgins jogged $1\frac{7}{8}$ miles on Monday, 3 $\frac{5}{6}$ miles on Tuesday, and $5\frac{1}{4}$ miles on Wednesday. How many miles did he jog altogether?
Thomas wants to make a frame for his picture. The arawing is 18 in. high and 24 in. wide. If he wants to make the frame from a single piece of wood, how long must the piece be?	Complete the pattern. 2, 9, 23, 51, ____, ____, ____ Describe the pattern:
Your school day begins at 8:50 a.m. and ends at 3:10 p.m. How long are you in school?	Solve. $42\overline{)3{,}281}$ Check your answer using estimation.
Use a compass and a ruler. Draw a circle with a radius of 7 cm. What is the diameter of the circle?	Draw a number line and place –7 and 5 on it.

Name:

In the number 1.093:

a. Which digit is in the hundredths place? ____

b. In which place is the digit 0? _____

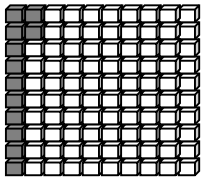
List the factors of each. Identify each number as prime or composite.

13 54 72

If a square has a perimeter of 32 centimeters what would be the measurement of each side?

Solve.

$9.848 \div 8 =$



What percent of the square is shaded? _____

What percent is not shaded? _____

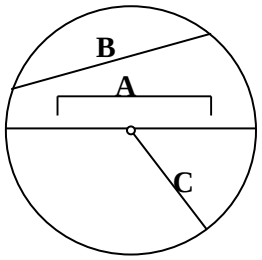
Find the missing divisor.

$4{,}644 \div n = 36$

Identify the parts of the circle.

Match

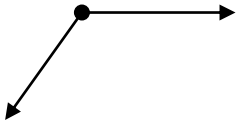
chord A
diameter B
radius C

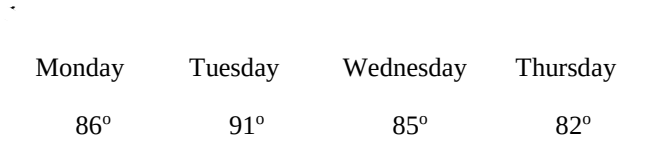


$2.8 \times 0.02 =$

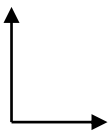
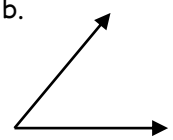
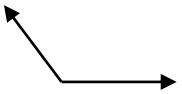
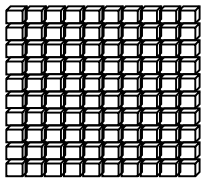
It is now 3:15 p.m. Is it possible to drive 135 miles and arrive before 5:00 p.m. if you drive 55 mph? Explain your answer.

Is the angle below a right, acute or obtuse angle? Explain your answer.

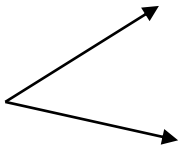


Choose >, <, or =. 23.932 _____ 23.93	Which unit of measurement would you use to estimate each of the following? Use metric or customary systems. a. your height b. your weight
Multiply. 0.43 x 0.5	Jim bought 5 pounds of hamburger. He put 2 $\frac{3}{4}$ pounds in the freezer and used the rest for supper. How much did he use for supper?
What is the perimeter of this rectangle?  1.25 yd 4.75 yd	Solve. $28\overline{)223}$
Draw a right angle. Label the <ABC.	 Monday Tuesday Wednesday Thursday 86° 91° 85° 82° What was the mean, (average) temperature for the four days?
Continue this pattern. 4, 9, 16, 25, ____, ____, ____	Draw a thermometer and show –10° and 15°F.

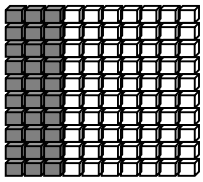
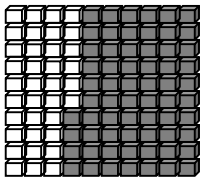
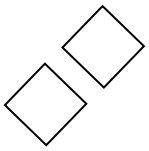
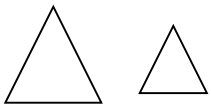
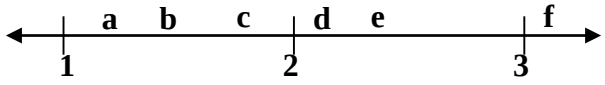
Name:

. Solve. 106.27 - 38.154 =	. $49\overline{)\$2989}$
. . A bag contains 8 yellow marbles, 7 blue marbles, 3 red marbles, 1 green marble and 1 white marble. a) What is the probability of drawing a red marble? _____ b) What is the probability of drawing a blue marble? _____	Classify the angles as obtuse, acute, or right. a.  _____ b.  _____ c.  _____
Shade the decimal square to show thirty-three hundredths. Write the shaded part as a percent. 	32 oz. of milk would be the same as _____ cups.
. Write as a decimal. $102\frac{9}{10}$	. If a room measures 25 feet by 16 feet, how many square feet of carpet are needed to cover the floor?
$9\frac{3}{4} - 7\frac{6}{8} =$	If Myles T. Go improves his time in the mile run by 5 seconds each week, predict what his time will be after seven weeks if his starting time in the first week was 6 min. 32 seconds.

Name:

Draw an angle measuring 100°. Label the ∠ABC. What type of angle did you draw?	Find the perimeter of a rectangle with a length of 9 yards and a width of 5 yards. Draw a picture and label.
$285 \div 94 =$	Write an equation using n for the unknown and solve. Mrs. Davis is 3 times as old as her son Joseph. She is 45 years old. How old is Joseph?
$8\frac{1}{3}$ $+ \quad 5\frac{3}{4}$ _____	Identify the angle as right, acute or obtuse and explain your reasons 
Write as a decimal. one hundred and seven thousandths _____	Suiki began cleaning her room at 11:45 a.m. She cleaned for $3\frac{3}{4}$ hours. What time did she stop?
Write the next three numbers in the sequence. Describe the pattern to someone in your house. 4, 5, 7, 10, ____, ____, ____	Find the mean (average) of these numbers: 152, 454, 202, 99

Name:

Joan baked 48 cupcakes. She divided them into 8 containers. Write an equation to show how to find how many cupcakes are in each container?	Solve. $0.236 \div 4 =$
Each student in the class read mystery books over the summer. Here are the names of five students and the number of books they read. Maria – 7 books Sara – 8 books Jose – 5 books Phil – 7 books David – 9 books On a separate piece of paper make a graph that clearly shows this information.	Solve. $8 - 3\frac{3}{4} =$
Mr. Suarez wanted to carpet his living room. Does he need to find the perimeter or area of the room? Explain your reasoning.	What decimal is shaded on each square ?   _____ _____
One winter day the temperature was 16°F. The next day it was 20° colder. What was the temperature then?	Are the figures below similar, congruent, or neither? Explain. a.  b.  _____ _____
Write the letter that shows the approximate position of 1.8 on the number line. _____ 	Identify the angle made by the hands of a clock at 4:45 as right, obtuse or acute.

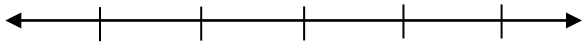
Rising Grade 7

Summer Math Packet

Name:

Write 40% as a simplified fraction and as a decimal number.

Graph: $x \leq 3$



Is this problem an example of an expression, an equation, or an inequality?

6 out of 50 states are in the New England region. What ratio of the United States is **not** in New England?

Write each repeated multiplication in exponential form:

3 x 3 x 3 x 3 _____

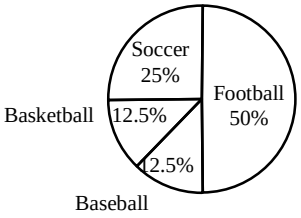
5 x 5 x 7 x 7 x 7 _____

4 x n x n x n x **m** x **m** _____

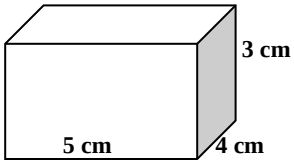
a) One out of every four students surveyed chose _____ as their favorite sport.

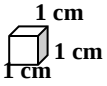
b) How many students said football was their favorite sport?

_____



200 Sixth Graders Were Surveyed

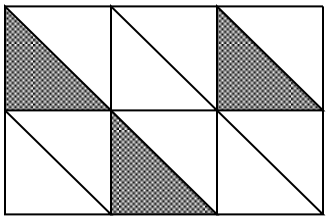




a) Estimate the number of centimeter cubes you will need to fill the large box (rectangular prism). _____
b) If you covered the bottom with one layer of centimeter cubes, how many would you need? _____
c) How many such layers would be in this box? _____

On January 1, Betsy was 5 feet, $4\frac{1}{2}$ inches ($5' 4\frac{1}{2}"$) tall. By the end of March she grew $1\frac{3}{4}$ inches. How tall was she at the end of March?

What percent of the figure below is shaded?

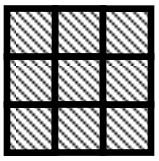


Find the value of the expressions below.

2^1 = _____ 2^2 = _____

2^3 = _____ 2^4 = _____

Create an equation to show an example of the additive identity property.

If 6 cans of soup cost $1.50, how much will 9 cans cost?	Write an exponential expression to represent the number of small squares in the diagram. 
Jim's backpack weighs 3 kg when filled. How many pounds is this, approximately?	Consider the inequality statement: $2 \geq x$ Write another inequality statement that means the same thing about the values of 2 and x.
Is the value of these expressions the same? Explain, and show your work. $4 \bullet 6 - 4$ $4 (6 - 4)$	Write 80% as a fraction in lowest terms. ____ Write 80% as a decimal. _____ Show the decimal on the number line.  Draw a picture to show 80%.
You toss two coins, each with "heads" on one side and "tails" on the other side. What is the probability that both of them land as "tails?"	True or False. All triangles are congruent. _____ Explain your answer.
Elizabeth had $\frac{3}{4}$ of her birthday candy left. She gave Toni $\frac{1}{2}$ of what she had. How much of her original candy does she have left?	Write **sometimes**, **always**, or **never**. a) a negative integer is less than a positive integer. _____ b) a negative integer is less than another negative integer. _____

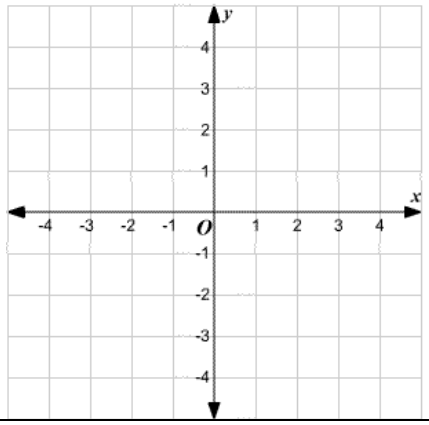
State at least one way in which the patterns are the same and at least one way in which the patterns are different.

a. 15, 20, 25, 30, 35

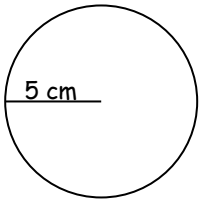
b. 15, 10, 5, 0, -5

Graph these ordered pairs:

A (1, 3) B (-2, 0) C (3, -4)



Use the formula $A = \pi r^2$ and find the area of the circle. $\pi = 3.14$



Use the multiplicative property of zero to complete the statement about the variable n:

n x 0 = _____

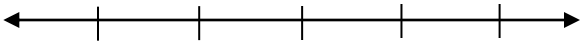
Circle the smallest integer. Draw a number line showing all four numbers to prove your answer.

a) 0 b) -5 c) 5 d) -1

A jogger runs completely around the outside of a football field. If the field is a rectangle 360 feet long and 160 feet wide, how far will the jogger run after one time around? Show how you solved the problem.

Simplify your answer.
John's room is 5 1/2 yards long and 4 2/3 yards wide. What is the area of his room?

Graph: $x > -2$

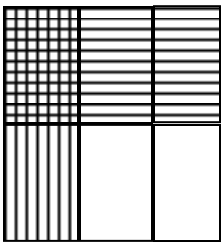
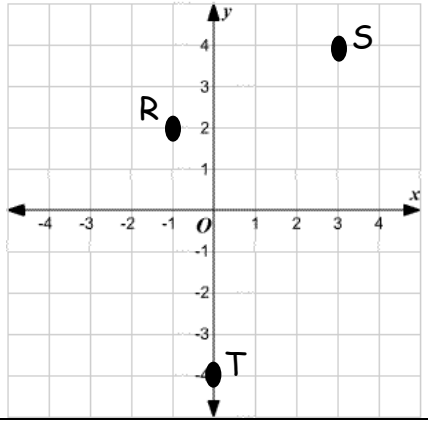
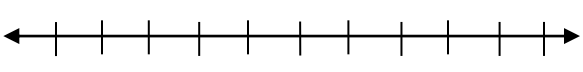


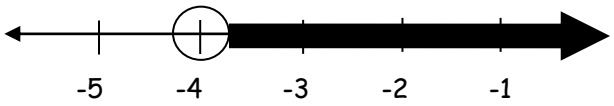
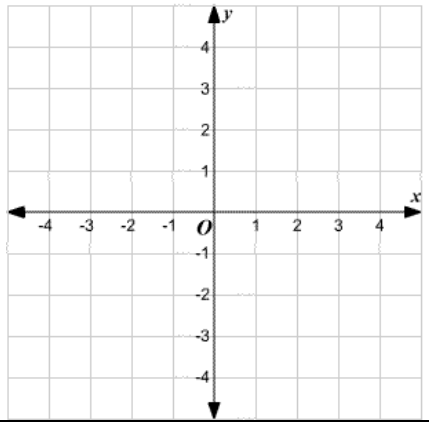
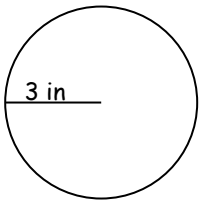
Compare. Use >, <, or =.

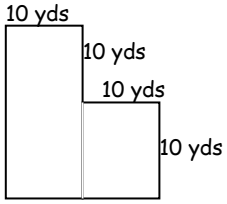
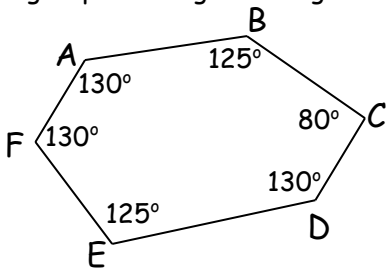
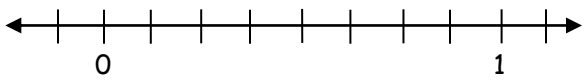
$\frac{3}{4} \bigcirc \frac{4}{5}$

Which fraction is larger? _____

The dimensions of a cereal box are 18"x3"x10" in. What is the volume of the box?

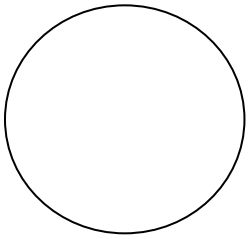
Lina is making trail mix for a hiking trip. She has 2 ½ cups of peanuts, 3 ¼ cups of raisins, and 2 2/3 cups of banana chips. How many cups of mix can she make?	How do you know that 50 is not a perfect square?
Create a multiplication problem whose product is 1/6, indicated by the double-shaded part of the square below.  ____ × ____ = $\frac{1}{6}$	Write the coordinates of the points shown: 
Circle the numbers that are the same as 50%. $\frac{1}{2}$ 5% 0.5 5 $\frac{5}{10}$ .50	This is 25% of a certain square, ABCD.  Draw 100% of square ABCD.
Abdi's bowling scores for June were 117, 98, 104, 121, 105, 104, 120 and 111. What is the mean of this data? _____ Which measure(s) of center would **not** be helpful to describe this data? Explain.	There are 25 paper plates in a package. How many packages are needed if 160 students are to attend a picnic.
Logical thinking puzzle: After dinner and dessert, the five friends left the restaurant. • Dana left after Paul but before Tyler. • Paul left between Alma and Chris. • Chris was the third person to leave. In what order did the friends leave?	The mean of a particular set of seven numbers is 4. Six of the numbers in the set are known: 1, 2, 2, 5, 7 and 8. Identify the missing number: _____ (Hint: Use a number line to think about mean as a balance point.) 

Explain why the probability of an event must be in between 0 and 1.	The ratio of girls to boys in a group is 3 to 5. Write this ratio in two other ways.
Write the inequality statement that describes the graph below.  	Find the value of the expression below: $\frac{16-9+(3\times5)}{3}$
Multiply. $2\frac{1}{3} \times 1\frac{1}{5}$	How do you know that 14 is not in the sequence 0, 4, 8, 12, ….?
Graph: A (2,1). Graph four more points whose distance from A is 3 units.  	Use the formula $C = 2\pi r$ to find the circumference of this circle. $\pi = 3.14$ 
Create a diagram to represent the expression below. 4^2	Matthew can usually cover 5.8 miles in one hour riding his bicycle. If he pedals twice as fast, how many hours it will take him to ride 36 miles?

The equation 6 x 1 = 6 is an example of which property of multiplication?	Which temperature is warmer, -2 degrees Fahrenheit or –17 degrees Fahrenheit?
Solve. $\frac{1}{3} \div \frac{1}{2} =$	In the figure below, all angles are right angles. What is the area? _____ What is the perimeter? _____ 
Solve. $a + 6\frac{1}{2} = 12$ Is this problem an example of an expression, an equation, or an inequality?	In the polygon below, identify any pairs or groups of congruent angles. 
Joan has planted 3/5 of her garden. What percent is planted?	Write an equation for the following problem, and let N stand for the answer. Then solve the problem: Steve is taking a test with 32 questions. If he misses six, how many will he answer correctly?
Place a point on the number line to represent the value three-fourths. 	Evaluate. $3^2 \bullet 2^3 =$

Construct a circle graph to show the percentages of students voting for candidates A, B & C in the school election.

15 students voted for A,
30 students voted for B,
45 students voted for C.



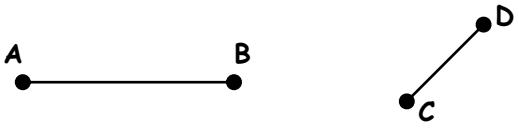
Compare. Use >, <, or =.

100% _____ 1

What does the phrase "measure of center" mean?

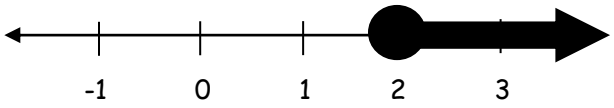
A new soccer field needs to be covered with sod. How many square meters of sod are needed if the field's measurements are 100 meters by 73 meters? Write the appropriate <u>formula</u> and show your work.

Do these line segments appear to be congruent? Why?



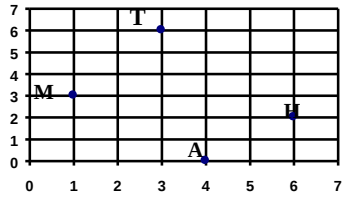
Theater tickets cost $23.00 each. Will $450.00 be enough for 20 students to attend the theater? Show your work.

Write the inequality statement that describes the graph below.



Give the coordinates for each point on the coordinate grid.

M = _____
A = _____
T = _____
H = _____

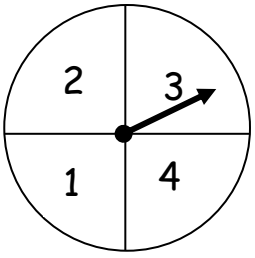
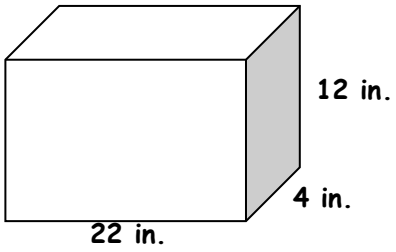


Complete the pattern.

1, 2, 4, 8, 16, _____, _____, _____

Draw a representation of this problem:

$$\frac{1}{2} \div 3 = \frac{1}{6}$$

1 Arrange from least to greatest. 0.50 100% 3/2 90%	2 The temperature at 6:00 a.m. was –3° F. What was the temperature at 9:00 a.m. if it had risen 8 degrees. Hint: Use a number line to help find the answer.
3. A rectangular kitchen that is 11.5 feet by 24.5 feet is to be covered with one square-foot tiles. How many tiles will be needed?	4. In the word MATHEMATICS, write the ratio of vowels to consonants.
5. Find the product of two and one-half and four and three-fourths. Express your answer as a mixed number.	6 Your family spends 30% of its monthly income on food. If your family earns $2000 a month, how much is spent on food?
7 I ate half of the apple pie. My brother ate a quarter of the pie. How much of the pie is left? Draw a diagram to show your answer.	8. Gina is going to spin the spinner below twice. What is the probability she will spin an <u>odd</u> number both times? 
9. Find the volume of the solid. 	10. How many one-halves ($\frac{1}{2}$)'s are there in 6?

Rising Grade 8

Summer Math Packet

1. Simplify:

$$\frac{7-15}{-2}$$

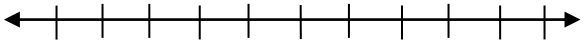
2. The town of Pratt has a population of about 8,260,000. Express this number in scientific notation.

3. What is the value of the expression below when a = -3 and b = 2?

$$a^2 + |ab|$$

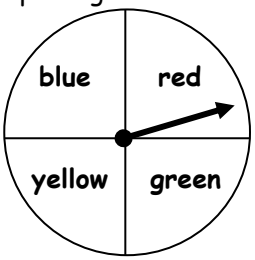
4. Solve and graph the solution to the inequality on the number line.

$$4 \geq x + 8$$



5. Mr. Nguyen saves $120 of his income of $800.00. What percent of his income does Mr. Nguyen save?

6. On this spinner, what is the theoretical probability of spinning a color that is <u>not</u> yellow?



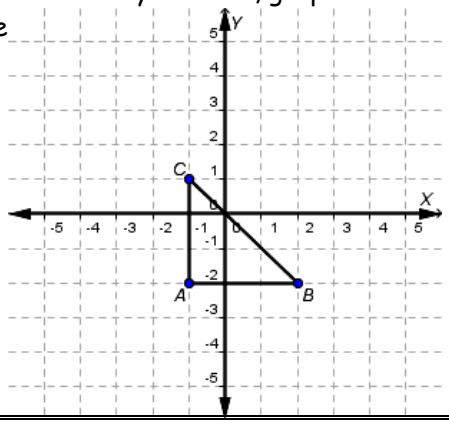
7. James owes $185 on his credit card. He makes a $65 payment and then purchases $87 worth of clothes at a local department store. What is the integer that represents the balance owed on the credit card?

8. Marcela's grocery bills for three months were $75, $87, and $25. To add the bills mentally, Marcela thought:

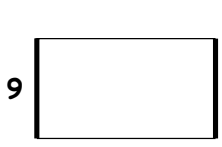
"75 + 87 + 25 = 75 + 25 + 87"

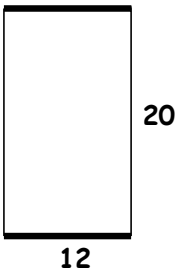
What property did Marcela use?

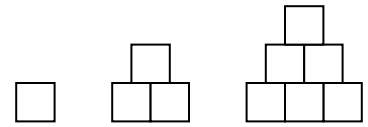
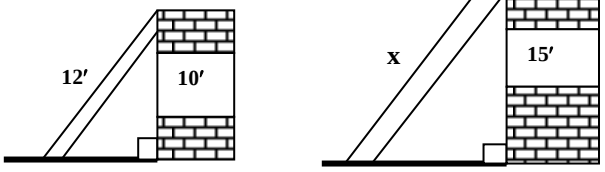
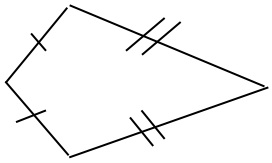
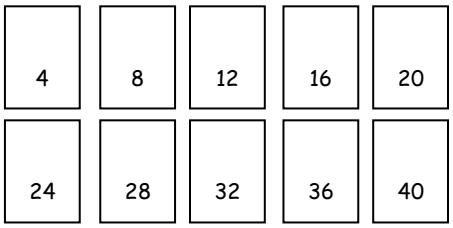
9. If the triangle shown is translated vertically 3 units and horizontally -4 units, graph the image of the triangle.



10. The rectangles below are similar. Write a proportion to show the relationship between the corresponding sides.

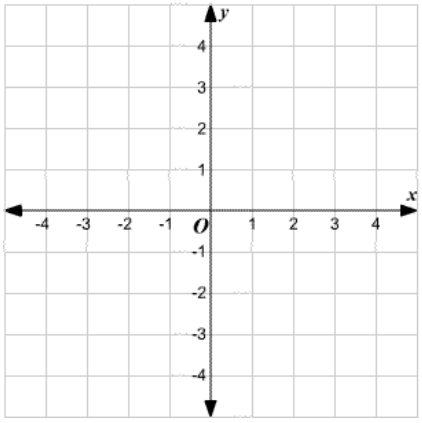




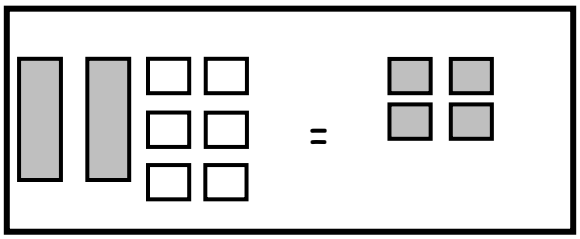
Simplify: $-3(14 - 20) + 2$	Kia's height is one-fourth of Sammy's height. If Kia is $\mathbf{1\frac{1}{2}}$ feet tall, how tall is Sammy?
<u>Multiple Responses</u>: Circle the letters of the verbal expression(s) that match this algebraic expression: $6 - 3k$ A. the product of 3 and k <u>is less than 6</u> B. the product of 3 and ***k*** <u>less than</u> 6 C. the product of 3 and ***k*** <u>less</u> 6 D. 6 <u>is less than</u> the product of 3 and ***k*** E. 6 <u>less than</u> the product of 3 and ***k*** F. 6 <u>less</u> the product of 3 and ***k***	 1st wall 2nd wall 3rd wall How many bricks are in the 3rd wall? _____ How many bricks would be in the 6th wall? ___ Explain the pattern.
Draw an isosceles trapezoid and label all congruent and parallel parts.	Solve: $13 = -3x - 8$
Two ladders leaning against two walls happen to form two similar right triangles. What is the height of ladder x?  	What is the most specific name to classify this plane figure?  What are other names that accurately classify this figure?
Sharon spends $80.00 at the computer store. The tax on her purchase is $4.00. Use a proportion to find the tax rate as a percent.	A card will be randomly selected from the cards shown below, and then replaced. A second card will then be selected.  What is the probability that the first card is a multiple of 8 and the second card is a perfect square?

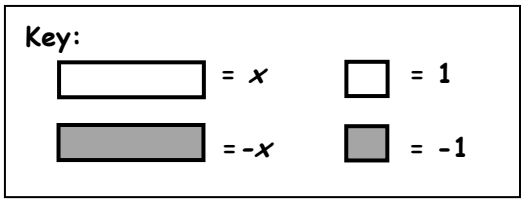
Graph the equation:

$$y = \frac{1}{3}x - 2$$



What value of x makes the model true?





What is 27,430,000 in scientific notation?

Ms. Ramos gives 8% of her income to charity. Ms. Ramos' monthly income is $2000. How much does she give to charity each month?

Jared flipped a fair coin 50 times. He expected half of his tosses to land on heads, but he only got heads 15 times. If he increased the number of times he flipped the coin to 500, he should expect the number of heads to be —

From the surface, a diver descended to 30 meters below sea level where she obtained a water sample. She then rose 12 meters and collected another water sample. How far below the surface was she when she collected the second sample?

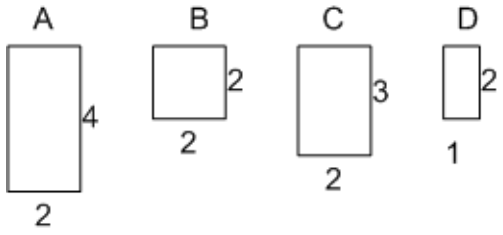
Evaluate: $\sqrt{81} - 3(\sqrt{25})$

Write this number in decimal notation instead of scientific notation: 3.2×10^5

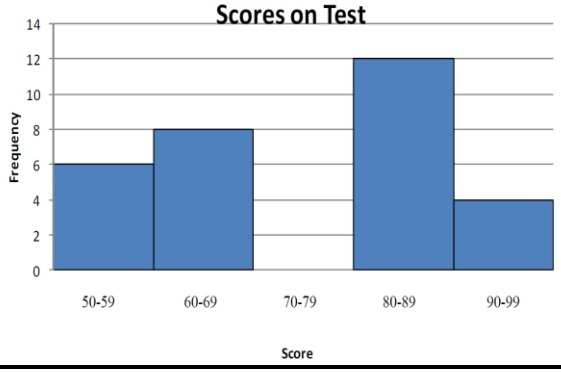
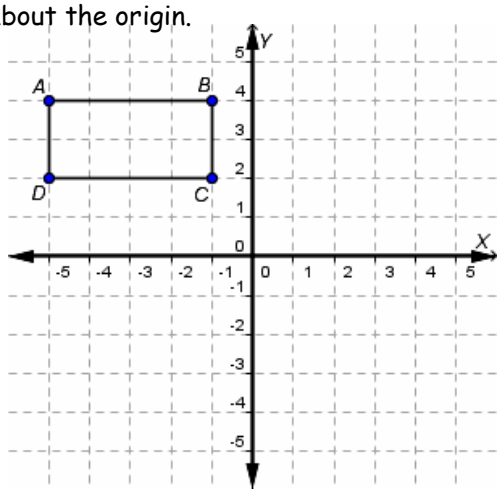
A tree 5 feet tall has a shadow that is 14 feet long. If another tree casts a shadow 21 feet long, at the same time of day, how tall is the tree?

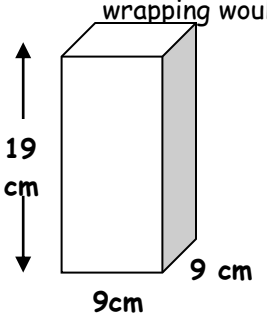
Circle all expressions that are equivalent to 4.

a) $\lvert 4 \rvert$	*b)* $\sqrt{4}$	*c)* $-(-4)$
d) -4	*e)* 40%	*f)* $-\lvert 4 \rvert$
g) 4%	*h)* $\sqrt{16}$	*i)* $\lvert -4 \rvert$
j) $\sqrt{8}$	*k)* 4×10^1	*l)* 400%

Two cards are chosen at random from a deck of 52 cards containing 13 hearts. The first card is NOT replaced. Write a fraction multiplication expression that could be used to find the probability of choosing two hearts.	Rewrite the exponential expression as a rational number: 10^{-4}
Dolores pays $25 per month for her cell phone bill. Complete the table to represent the relationship between the number of months, *m*, and her total payments, *p*, for varying numbers of months.	Together Juan and Michael score 31 goals during soccer season. Juan scored 19 goals and Michael scored the rest. Write an equation to show the number of goals scored by Michael. How many goals did Michael score?
The Munchery Restaurant advertises that you can have a different lunch combination every day of the year. They offer 12 different kinds of soups, 6 different sandwich meats and 4 different kinds of bread. Is their claim valid? Explain.	Jose plans to buy a pair of jeans that are on sale for 25% off. If the regular price is $48, how much will he have to pay?
Explain how a rectangle is different from a rhombus.	Solve: $2x - (-13) = 33$
Which two rectangles are similar? 	Elijah knew he needed to get an equivalent fraction before he could evaluate the expression $\frac{1}{5}+\frac{8}{15}$. He decided to multiply $\frac{1}{5}$ by $\frac{3}{3}$. What property did he use to get the equivalent fraction $\frac{3}{15}$?

Number of months *m*	Total Payments *p*
1	$25
5	$125
8	$200
11	
	$425

Sam has a paper route. Each week she earns $10.00 plus $0.10 for each paper she delivers. Last week she earned $20. How many papers did she deliver? Explain your problem solving strategy.	A scale drawing of a rectangular room has a length of six inches and a width of 4 inches. The drawing uses a scale of 1 inch to 3 feet. Find the cost to carpet the room if carpeting costs $5 per square foot.
Solve: $4x - 2 = -26$	Solve: $-5z \geq 15$
Holly decided to start an exercise program. She began by jogging for 1 min. on the first day, and then each new day she doubled her previous day's jogging time. She did this for 7 days. Make a table to show each day with time jogging each day. How long would she jog on the 7th day?	At night the average surface temperature on the planet Saturn is –150° C. During the day the temperature rises 27° C. What is the temperature on the planet's surface during the day?
Mr. Pucelli is making a histogram to show the scores on a test. Complete the missing bar in the histogram to show scores from 70-79. 5 | 0 5 5 5 5 5 6 | 0 0 0 0 0 5 5 5 7 | 0 0 5 5 5 5 5 5 5 8 | 0 0 0 5 5 5 5 5 5 5 5 5 9 | 0 0 0 5 	Rotate the rectangle clockwise 180 degrees about the origin.  Which best describes the location of the image of vertex C?

Kristin goes to the mall and buys a pair of brand name sunglasses on sale for $\frac{1}{3}$ off the regular price of $240.00. How much will she have to pay?	Flip a coin ten times and notice how often "heads" appeared. Explain your experimental probability compared to the theoretical probability to justify why they are the same or different.
A rectangle has a perimeter of 30 m. The length is 10 m. Solve the following equation to find the width. $2w + 2(10) = 30$	The planet Mars is about 142,000,000 miles from the sun. Express the number in scientific notation.
Complete the table. **Input X** / **Function Rule** / **Output Y** **2** / **3(2)** / **6** **6** / **3(6)** / **** / **3(8)** / **24** **10** / **** / Marty and his brother went to the Grand Canyon. They dropped a dime off the highest cliff. The distance the dime fell is 16ft the first second, 48ft the next second, 80ft the third second. What is the common difference?	The box shown below needs to be wrapped for shipping. How many square centimeters of wrapping would be needed to cover the box?  Bao mails a math puzzle to three friends. Each of the three friends mails the puzzle to three more friends, and so on. What is the total number of puzzles in the sixth mailing?
Which is greater, 3.3×10^{-1} or 0.3? By how much?	Solve: $-2 + 5x = -14$

.

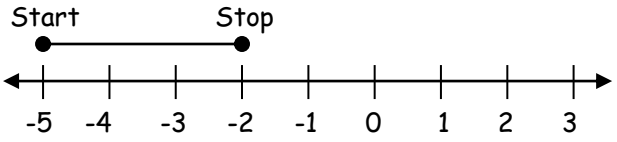
Triangles *EFG* and *QRS* are similar. The length of the sides of *EFG* are 144, 128, and 112. The length of the smallest side of *QRS* is 280, what is the length of the longest side of *QRS*?

.

Evaluate this expression for n = 3:

$$n + 10 \div 2 - (n + 7)$$

.



Multiple responses: Select all equations that are true and that could be represented by the model above.

A -5 + -3 =-2

B -2 + -3 = -5

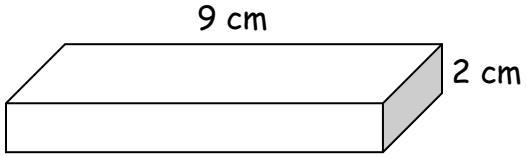
C -5 – (-3) = -2

D -3 + 5 = 2

E -5 + 3 = -2

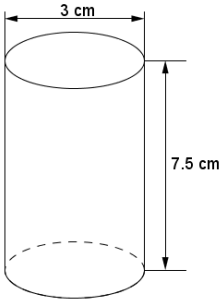
.

The volume of the rectangular box shown below is 90 cubic centimeters. The length on one side of the top is 9 centimeters and the height of the box is 2 centimeters. What is the area of the top of the box?



.

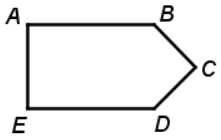
Mrs. Smith needed to fill the sandbox at her preschool. The sand came in cylinders like the one pictured below.

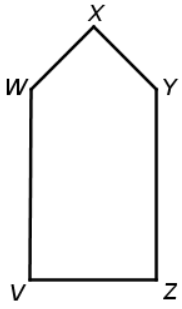


To the nearest hundredth, determine how much sand each cylinder held.

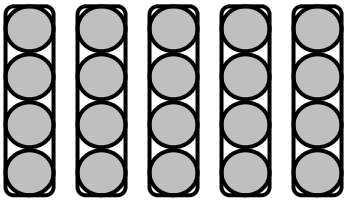
.

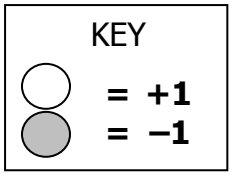
Pentagon CDEAB is similar to pentagon XYZVW, and the scale factor is 3:4. If CD=4.5, find the value XY.





The model represents which equation?





A 5 (-4) = -20

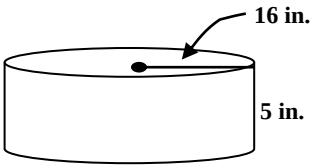
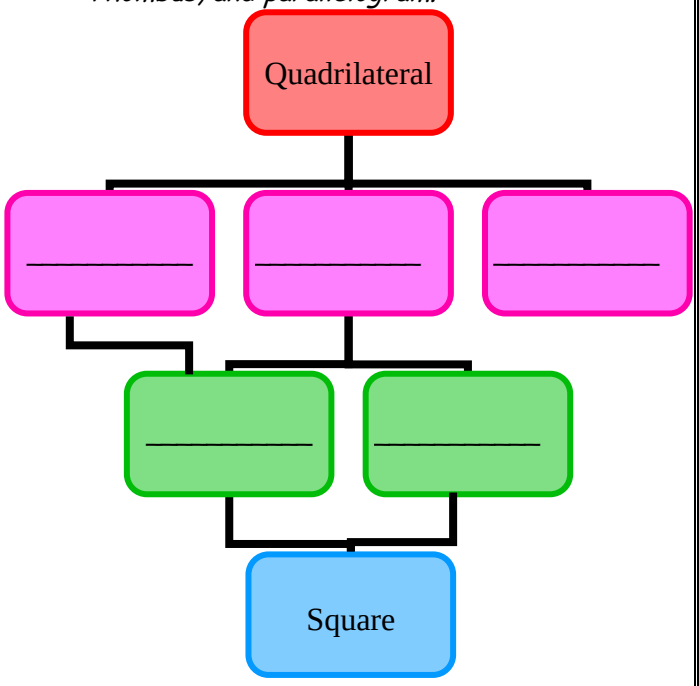
B 5 (4) = -20

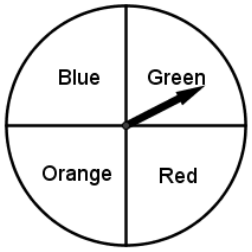
C -5 (4) = 20

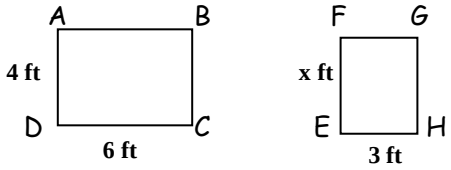
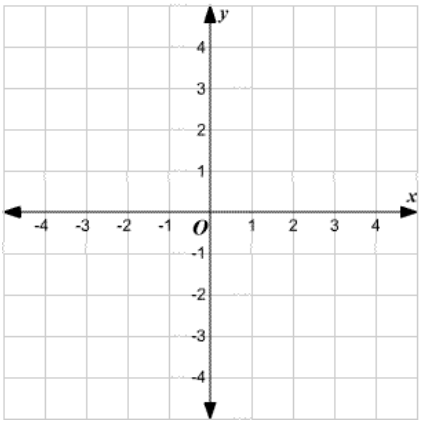
D -5 (-4) = 20

.

Suppose there are 2 choices for ice cream cones: sugar or cake, and there are 3 choices for ice cream: chocolate, vanilla or strawberry. Draw a tree diagram to determine the number of possible combinations.

Evaluate $10^4 \times 10^{-4}$.	Solve: $2n + 3 = 11$
Susan can swim 30 laps in one hour. At this rate, how many laps could she swim in two and a half hours?	Consider the sequence 1, 4, 9, 16, … What expression could you use to find the *nth* term?
Sophia is planning a vacation. She looks at a map with the following scale. $\frac{1}{2}$ inch = 25 miles On the map, Sophia finds the distance from Richmond, VA to Washington, D.C is 2 inches and the distance from Washington to New York City, NY is 5 inches. If she drives from Richmond to Washington and then to New York City, about how many miles will she travel?	Find the surface area. Use 3.14 for π. Round decimal answers to the nearest tenth.  $C = \pi d$ $A = \pi r^2$
Write an equation for the following: -4 is 6 less than an unknown number. Solve the equation.	Complete the missing terms in the proper place in the diagram to show the organization of quadrilaterals by common attributes. The missing terms are: *rectangle, trapezoid, kite, rhombus, and parallelogram.* 
A cube shaped pool is half full of water. If the water is 3 feet deep, what is the volume when the water is all the way to the top?	

1 Draw a parallelogram, and label all congruent segments, congruent angles, and parallel sides.	. The price of a CD is $16. If the sales tax is 4%, what will be the total price of the CD?
. A game spinner is equally divided into blue, green, red, and orange. Mike spun the game spinner 8 times. The spinner landed on Red 3 times. How does Mike's results compare to the theoretical probability of landing on Red?  	- Margaret works for a soup company as an engineer. She is designing a new size soup can. Margaret needs to find…. A the surface area to determine how much soup the new can will hold. B the surface area to determine the amount of aluminum needed for the new can. C the volume to determine the amount of aluminum needed for the new can. D the volume to determine the amount of paper needed to cover the can with a paper soup label.
Complete the table of values that satisfy $y = 3x - 5$ x | y -2 | -1 | 0 | 1 | 2 |	. If the expression T+10 indicates 10 seconds after "take-off" of a space shuttle, what expression indicates 10 seconds before the take-off?
7 A bucket will hold 30 stones. The first person puts in one stone. The second person puts in two stones. The third person puts in three stones, and so on. On which person's turn will the bucket become full?	The Smiths went to a restaurant. The bill was $27.70. If they gave a 15% tip, how much was the tip?
Robert baked 36 brownies. He saved 12 brownies for himself, and gave the same number of remaining brownies to each of his 6 children. Write an expression that can be used to find the how many brownies each child received. Then simplify it to find the amount.	If the height of a rectangular prism is cut in half, what would happen to its volume?

There are 169 chairs in the gymnasium that need to be arranged in rows and columns. How can they be divided so that there are an equal amount of rows and columns?	A crate has the shape of a cube and measures 8 inches on a side. How much space inside the cube is available for storage, in cubic inches?
Solve: $3 = -7 - x$	Solve: $5n - 2 = -9$
Rectangle ABCD is similar to rectangle EFGH. Find the value of x. 	Jose's grandmother gives him $0.10 on Sunday. On Monday, she gives him $0.20. On Tuesday, she gives him $0.40. If she continues this pattern, how much money will she give him on Saturday of that week?
Your family spends 30% of its monthly income on food. If your family earns $2000 a month, how much is spent on food?	Which property is shown below? $2(3 + 4) = 2(3) + 2(4)$
There are 24 marbles in a bag. Six marbles are red, eight are green and ten are black. Find the probability of choosing a green marble if one marble is chosen at random. Express the probability: as a ratio _____ as a decimal _____ as a percent _____ as a point on a number line: 	The preimage of rectangle *CATS* has vertices *C* (-1, 2), *A* (1, 2), *T*(1, -2) and *S* (-1, -2) .  Graph the dilation of rectangle *CATS* by a scale factor of 2.

Rising Algebra 1 Accelerated

Summer Math Packet

Summer Math Packet: Rising Geometry Students

Solving Equations

Step 1: Simplify: a. Distribute
b. Combine any like terms on one side of the equation
Step 2: Get all variables on one side of the equation using the inverse.
Step 3: Undo any addition or subtraction
Step 4: Undo any multiplication or division

Solve each equation.

1) $380 = 19x$

2) $13 = x + 15$

3) $n - 2\frac{1}{4} = \frac{173}{44}$

4) $\frac{17}{13}k = -\frac{153}{13}$

5) $-8p + 7p = 8$

6) $-6 = 8 + v - 6$

7) $3 + 4r = 5r - 2$

8) $16 + a = 1 + 6a$

9) $2(-4x - 2) = -12 - 6x$

10) $3x + 40 = -6x + 7(x + 8)$

Solve each proportion.

11) $-\frac{9}{8} = \frac{2}{a}$

12) $\frac{5}{3} = \frac{6}{r}$

13) $\frac{2}{3} = \frac{v-1}{6}$

14) $\frac{3}{4} = \frac{b-4}{6}$

15) $\frac{8}{7} = \frac{a}{a+2}$

16) $\frac{6}{x} = \frac{4}{x-4}$

Adding and Subtracting Fractions

1. Determine if the fractions have a common denominator. If so, skip to step 4 .
2. Find the least common denominator (LCD) by factoring each denominator multiple the shared factors by the unshared factors.
3. Find the equivalent fractions with the LCD.
4. Add numerators and place over common denominator.
5. Simplify the resulting fraction.

Example

$$\frac{a}{b}+\frac{c}{d}=\frac{a}{b}\cdot\frac{d}{d}+\frac{c}{d}\cdot\frac{b}{b}=\frac{ad}{bd}+\frac{cb}{bd}=\frac{ad+cb}{bd} \qquad \frac{1}{6}+\frac{3}{10}=\frac{1}{6}\cdot\frac{5}{5}+\frac{3}{10}\cdot\frac{3}{3}=\frac{5}{30}+\frac{9}{30}=\frac{14}{30}=\frac{7}{15}$$

Evaluate each expression.

17) $\left(-\frac{5}{4}\right)-\left(-1\frac{1}{5}\right)$

18) $\frac{4}{7}+\left(-3\frac{5}{7}\right)$

19) $\left(-5\frac{2}{3}-3\frac{1}{6}\right)\div -1\frac{5}{6}$

20) $-1\frac{1}{3}-\left(\frac{7}{4}-\frac{-7}{6}\right)$

Part I: Numeracy and Operation Skills (Should be able to complete WITHOUT a calculator)

For numbers 1-13, simplify the following:

1. $0 \div 5.928$

2. $5.928 \div 0$

3. 9^3

4. -7^2

5. $-(-10)^2$

6. $(-3)^4$

7. $\left(\frac{5}{6}\right)^2$

8. $\sqrt{196}$

9. $\sqrt{169}$

10. $\sqrt{121}$

11. $-\sqrt{81}$

12. $8 + 3[3 - (1)^6]$

13. $3^4 + 12 \div 3 - (1 - 9)$

Part II: Algebraic Skills: Solving Equations

For numbers 14-26, solve the following variables:

14. $44 = 14 - 2a$

15. $33 = 17 - 2y$

16. $\frac{f}{45} - \frac{2}{9} = \frac{2}{9}$

17. $43a + 10 - 26a = 27$

18. $33d + 13 - 30d = 46$

19. $50q - 43 = 52q - 81$

20. $49p - 33 = 57p - 89$

21. $n - 8 + n = 1 - 4n$

22. $-3y + 3 - 2y = -1 + y$

23. The formula for area of a circle, A, is $A = \pi r^2$ where r represents the radius. Solve for r.

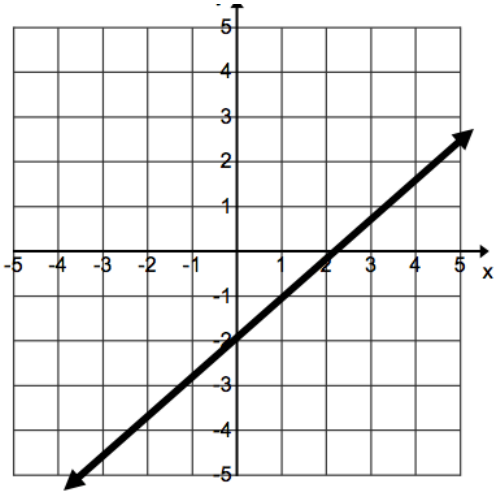
24. Solve $4x - z = y$ for x.

25. $\frac{5}{6} = \frac{x}{30}$

26. $\frac{3}{8} = \frac{x}{72}$

Part III: Algebraic Skills: Slope/ Writing and Solving Linear Equations

27. Find the x- and y- intercepts.

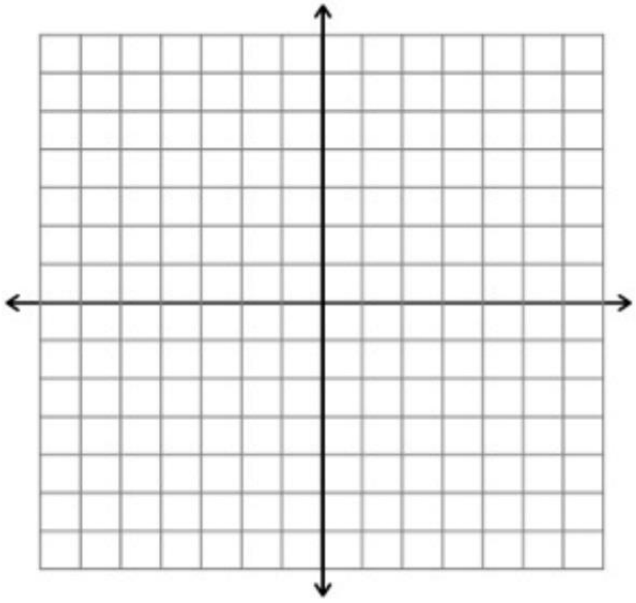


28. Find the x-and y-intercepts of:

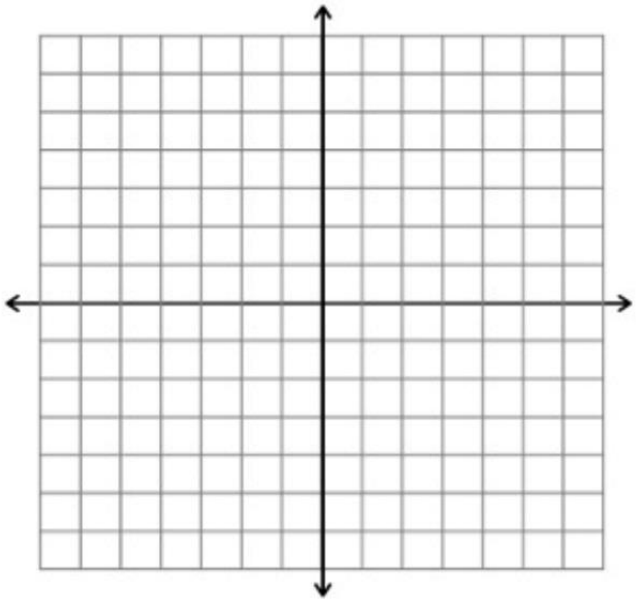
A. $2x - 4y = -12$

B. $-2x - y = 2$

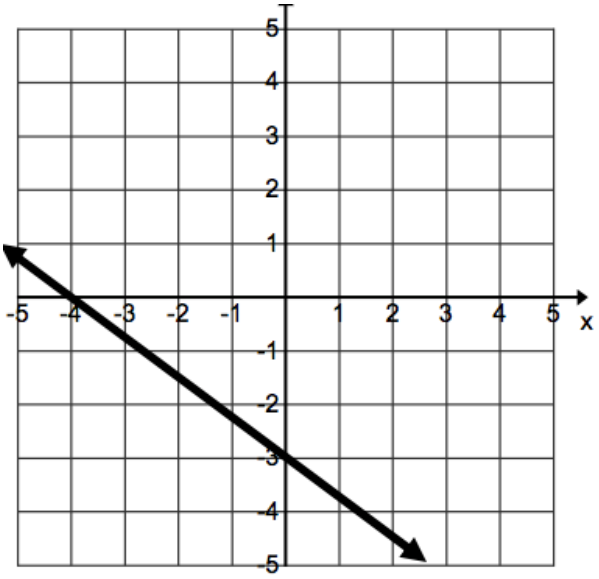
29. **Use intercepts to graph the line** described by the equation $3x + 2y = 6$.



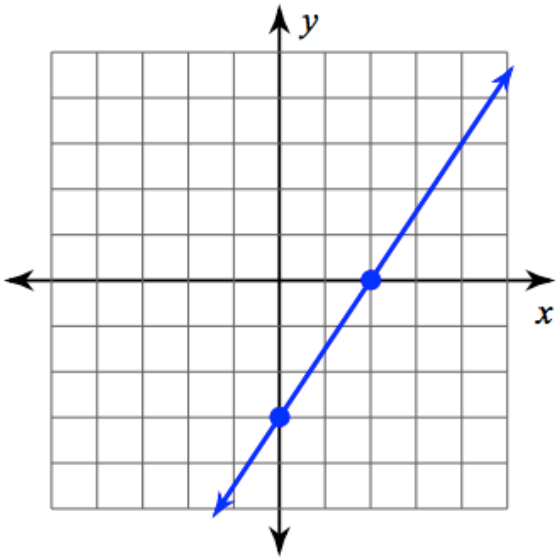
30. **Use intercepts to graph the line** described by the equation $-2x = 4 + 4y$



31. Given the graph below, find the slope of the line.



32. Given the graph below, find the slope of the line.



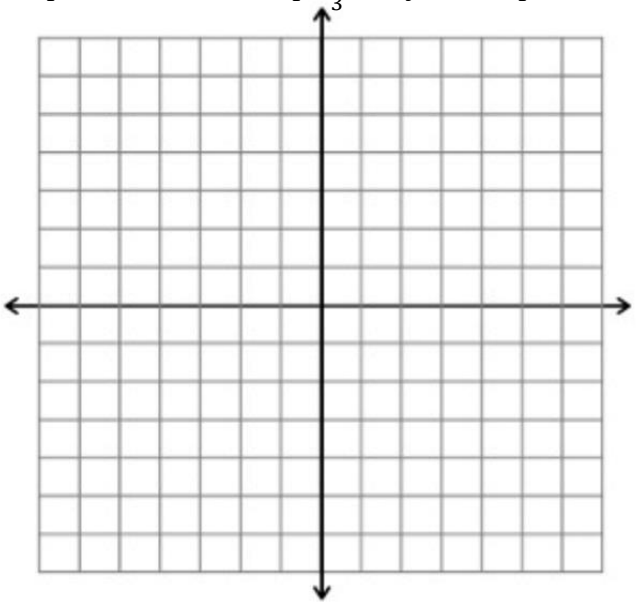
33. Describe what a graph looks like when a slope is positive, negative, zero, and undefined.

34. Find the slope of the line that contains (1,6) and (10, -9).

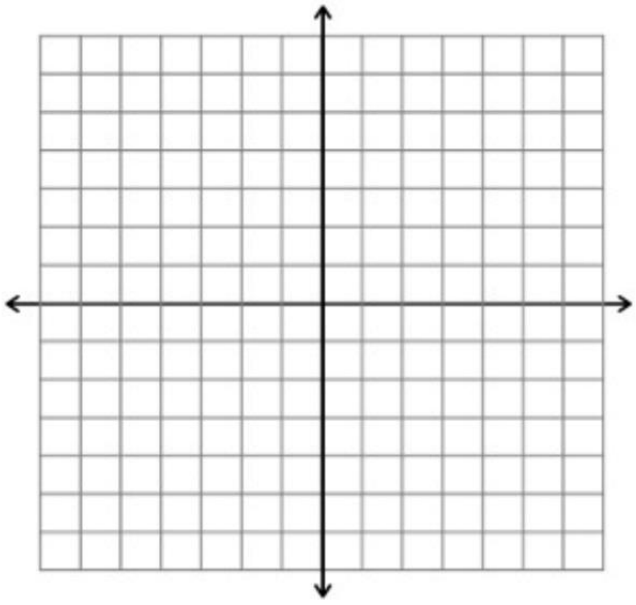
35. Find the slope of the line that contains (-10,0) and (-2, -4)

36. Find the slope of the line described by $x - 3y = -6$

37. Graph the line with slope $\frac{7}{3}$ and y-intercept -2.



38. Write the equation $4x + 8y = -24$ in slope- intercept form. Then graph the line described by the equation.



39. Write the equation that describes the line with slope =2 and y-intercept = $\frac{3}{2}$ in slope-intercept form.

40. Write the equation that describes the line that passes through (2,3) and is perpendicular to the line $y = \frac{1}{3}x - \frac{4}{3}$.

41. Write the equation that describes the line that passes through $(-5, -4)$ and is parallel to the line $y = 7x + 1$.

Part IV: Algebraic Skills: Systems of Equations

42. Solve $\begin{cases} 3x + y = -3 \\ y = x + 5 \end{cases}$ by using substitution. Express your answer as an ordered pair.

43. Solve $\begin{cases} 4x - 4y = -16 \\ x - 2y = -12 \end{cases}$ by using substitution. Express your answer as an ordered pair.

44. Solve $\begin{cases} 3x - 6y = 12 \\ 2x + 6y = -12 \end{cases}$ by using elimination. Express your answer as an ordered pair.

45. Solve $\begin{cases} 2x - 5y = -7 \\ 5x - 3y = 11 \end{cases}$ by using elimination. Express your answer as an ordered pair.

Part V: Algebraic Skills: Quadratics

For numbers 46-53, multiply the following:

46. $(n-5)(n-1)$

47. $(n+2)(n+4)$

48. $(z+3)(z-2)$

49. $(x+4)(x+2)$

50. $(p-8)^2$

51. $(x-4)^2$

52. $(r+7)(r-7)$

53. $(q+6)(q-6)$

For numbers 54-57, factor the following.

54. $x^2+101x+100$

55. $a^2+14a+48$

56. $p^2+3p-18$

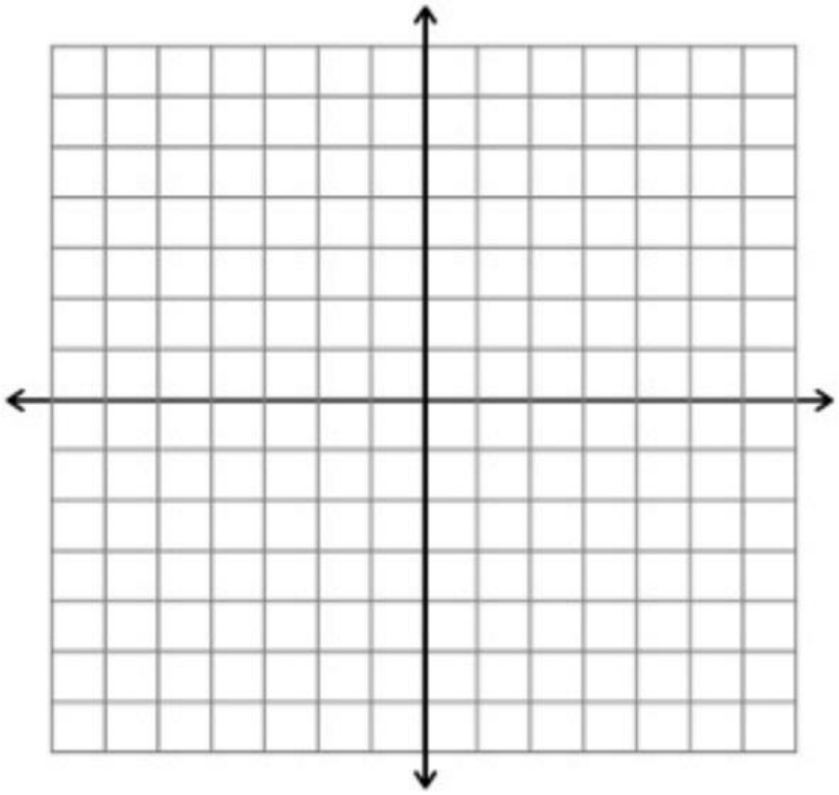
57. $3x^2+2x-8$

58. Solve the quadratic by using the quadratic formula.

$$b^2 - 4b + 5 = 0$$

59. Graph the following quadratic. Then, answer the following questions.

$$y = x^2 + 2x + 1$$



A. State the x-intercepts: _____

B. State the y-intercept: _____

C. State the vertex: _____