Get Ready for 7th Grade!
Summer
Mathematics Activities

Dear Parents, Guardians, and Students,

Summer is a time to relax, explore, and have fun while keeping learning skills strong. Research shows that students can lose up to a month of math learning over the summer. Regular math practice helps students maintain their knowledge and confidence and prepare for the next grade. To help prevent this "summer slide," we have provided a variety of fun and engaging math activities for students to enjoy throughout the summer.

Daily Math Practice

We encourage students to complete one First in Math assignment each day to strengthen their math skills and build fluency.

Using the Summer Math Activity List

- Complete the activities in the boxes and cross off each activity as it is completed.
- Have fun completing a choice activity.
- Record completed activities on the activity log.
- Bring your completed log to school and show it to your new teacher to receive a special gift!

Helpful Materials

Keep these items nearby as you complete your summer math activities:

- Math notebook/journal from the school year
- A folder for organizing activities
- Blank paper
- Pencils
- A deck of playing cards
- Board games
- Coins

Our IB Transdisciplinary Theme, *How We Express Ourselves*, encourages scholars to explore, communicate, and apply ideas. Mathematics offers opportunities for creativity, problem-solving, and critical thinking. Whether cooking, shopping, traveling, or playing games, children can think mathematically in everyday situations.
Most importantly, encourage your child to explain their thinking as they solve problems. Asking questions such as, "How did you figure it out?" helps deepen understanding, build confidence, and strengthen mathematical reasoning.

We wish you a safe, enjoyable, and mathematically engaging summer!
Sincerely,

The Hempstead Public Schools Mathematics Team

Summer Math Activity Log

Activity log for student entering grade_____. Record the dates and descriptions of the math activities you complete. Bring this log back to your new teacher in September.

Activity #	Date Completed	Description of Activity
Example	**7/2/24**	**The Math Problem about drawing 2 dogs. *OR* choice activity, like Candy Land…**
#1		
#2		
#3		
#4		
#5		
#6		
#7		
#8		
#9		
#10		
#11		
#12		
#13		
#14		
#15		
#16		
#17		
#18		
#19		
#20		

Student's Name: _____

Parent Signature: _____

Summer Math Activity Log

Activity log for student entering grade_____. Record the dates and descriptions of the math activities you complete. Bring this log back to your new teacher in September.

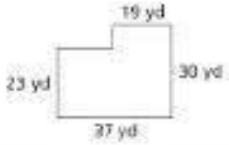
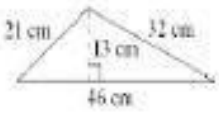
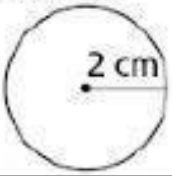
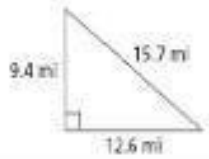
Activity #	Date Completed	Description of Activity
#21		
#22		
#23		
#24		
#25		
#26		
#27		
#28		
#29		
#30		
#31		
#32		
#33		
#34		
#35		
#36		
#37		
#38		
#39		
#40		

Student's Name: _____

Parent Signature: _____

Get Ready for Grade 7: Math Activities

Complete these math activities this summer. Each time, choose an activity from the boxes below – or from the back. Cross off a box when you do it and record the activity on your math log.

Find the area and perimeter: 	**If you pull eight coins from your pocket, and none of them are pennies, what is the most money that you could have? The least?**	**The perimeter of a rectangle is 72m. The width of the rectangle is 16m. What is the area of the rectangle?**	**There are 80 total students in the 7th grade this year and the ratio of boys to girls is 3:7. How many boys are in 7th grade this year?**	Choose from the Problem Set!!
Solve: $\frac{1}{2}+\frac{1}{4}=$ $\frac{1}{4}+\frac{1}{3}+\frac{7}{12}=$	**Find the prime factorization of each of the following:** **A. 39 B. 210 C. 310**	Choose from the Problem Set!!	**GCF (17, 34) =** **GCF (20, 25) =**	**Divide:** $\frac{3}{4} \mid \frac{1}{2} =$
Find the area. 	Choose from the Problem Set!!	**If the mean, median, and mode are all equal for the following set, what is the value of x?** **{3,4,5,8,x}**	**If three pies require 2 dozen apples, then four pies require ___ dozen apples.**	**Express the fraction $\frac{17}{20}$ as a decimal and as a percent.**
What is the volume ***and*** surface area of a rectangular prism with a length of 2cm, a width of 4cm, and a height of 3cm?	**LCM (9, 15) =** **LCM (6, 18) =**	**Find the mean, median, mode, and range of the following set.** **{94, 96, 78, 90}**	Choose from the Problem Set!!	$\frac{3}{4} \times ? = \frac{2}{3}$
Find each quotient. $0.4 \div 0.02 =$ $0.09\overline{)0.108}$	**In one year, what percent of your time is spent in school?** **Year=365 days** **School year=180 days**	**The mean of six test scores is 83. What is the sum of the six test scores?**	3 . 7 12 _	Choose from the Problem Set!!
Choose from the Problem Set!!	Find the area to the nearest tenth: 	Solve for the unknown: $x + 20.6 = 64.3$	**Simplify:** $2^3 + (8 \quad 5) \quad 4 \quad 5^2$	**A jacket costs $94.95. It is on sale for 30% off. Estimate the sale price.**
As of today, what is the ratio of wins to total games the Red Sox have played?	**Danielle is now as old as Kelly was eight years ago. Kelly is now 26. How old is Danielle?**	Choose from the Problem Set!!	**If 24 gallons of water are poured into an empty tank, then ¾ of the tank is filled. How many gallons does a full tank hold?**	Find the area: 

Get Ready for Grade 7 Choice Activities

1. **Read a Cool Mathematics Book:**

The Phantom Tollbooth by Norton Juster ***Math Curse*** by Jon Scieszka ***Chasing Vermeer*** by Blue Balliett ***All of the Above*** by Shelley Pearsall ***The Man Who Counted: A Collection of Mathematical Adventures*** by Malba Tahan	***The Number Devil*** by Hans Magnus Enzensberger ***Sir Cumference and the Dragon of Pi*** by Cindy Neuschwander ***Sir Cumference and the Sword in the Cone*** by Cindy Neuschwander
Find Mathematics Books to Read Online at Epic!: https://www.getepic.com/ Parents can sign up for free!	

2. **Use a cool mathematics website!**

http://illuminations.nctm.org http://www.shodor.org/interactivate/activities www.aaamath.com http://nlvm.usu.edu/en/nav/vlibrary.html https://www.youcubed.org/students/	www.mathplayground.com www.funbrain.com https://www.khanacademy.org/ http://www.visualfractions.com/ https://www.prodigygame.com/ https://www.firstinmath.com/

3. **Exercise your brain with a strategy game. A great way to have fun with friends and family! Some good games are listed below. Maybe you've got some favorites of your own!**

   - **Sequence**
   - **Chess**
   - **Dominoes**
   - **Blokus**
   - **Quirkle**
   - **Set**
   - **Settlers of Catan**
   - **Ticket to Ride**
   - **Mastermind**
   - **Go**

4. **Take a free online course designed for learners of all levels of mathematics Just follow the link below:**

   Stanford Online

PROBLEM SET

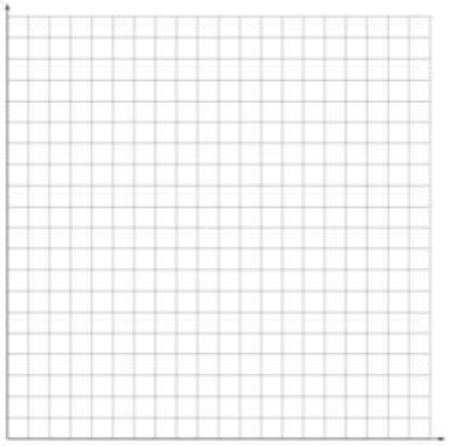
Name _____ Date _____

1. The most common women's shoe size in the U.S. is reported to be an $8\frac{1}{2}$. A shoe store uses a table like the one below to decide how many pairs of size $8\frac{1}{2}$ shoes to buy when it places a shoe order from the shoe manufacturers.

Total Number of Pairs of Shoes Being Ordered	Number of Pairs of Size $8\frac{1}{2}$ to Order
50	8
100	16
150	24
200	32

   a. What is the ratio of the number of pairs of size $8\frac{1}{2}$ shoes the store orders to the total number of pairs of shoes being ordered?

   b. Plot the values from the table on a coordinate plane. Label the axes. Then use the graph to find the number of pairs of size $8\frac{1}{2}$ shoes the store orders for a total order of 125 pairs of shoes.



2. Wells College in Aurora, New York was previously an all-girls college. In 2005, the college began to allow boys to enroll. By 2012, the ratio of boys to girls was 3 to 7. If there were 200 *more girls than boys* in 2012, how many boys were enrolled that year? Use a table, graph, or tape diagram to justify your answer.

3. Most television shows use 13 minutes of every hour for commercials, leaving the remaining 47 minutes for the actual show. One popular television show wants to change the ratio of commercial time to show time to be 3: 7. Create two ratio tables, one for the normal ratio of commercials to programming and another for the proposed ratio of commercials to programming. Use the ratio tables to make a statement about which ratio would mean fewer commercials for viewers watching 2 hours of television.

Problem Set

1.

a. Create a ratio table for making lemonade with a lemon juice-to-water ratio of 1: 3. Show how much lemon juice would be needed if you use 36 cups of water to make lemonade.

b. How is the value of the ratio used to create the table?

2. Ryan made a table to show how much blue and red paint he mixed to get the shade of purple he will use to paint the room. He wants to use the table to make larger and smaller batches of purple paint.

Blue	Red
12	3
20	5
28	7
36	9

a. What ratio was used to create this table? Support your answer.

b. How are the values in each row related to each other?

c. How are the values in each column related to each other?

Exercise 6

Also on the news broadcast, a chef from a local Italian restaurant demonstrated how he makes fresh pasta daily for his restaurant. The recipe for his pasta is below:

3 eggs, beaten

1 teaspoon salt

2 cups all-purpose flour

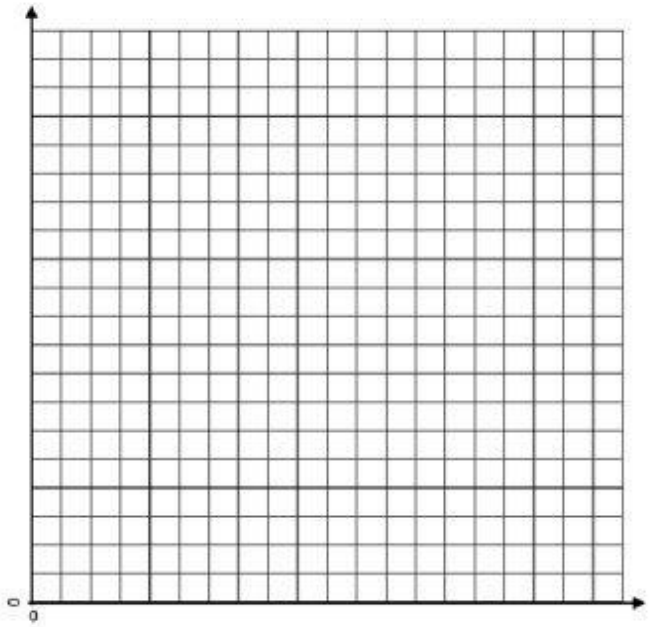
2 tablespoons water

2 tablespoons vegetable oil

Determine the ratio of the number of tablespoons of water to the number of eggs.

Provided the information in the table below, complete the table to determine ordered pairs. Use the ordered pairs to graph the relationship of the number of tablespoons of water to the number of eggs.

Tablespoons of Water	Number of Eggs
2	
4	
6	
8	
10	
12	



What would you have to do to the graph in order to find how many eggs would be needed if the recipe was larger and called for 16 tablespoons of water?

Demonstrate on your graph.

How many eggs would be needed if the recipe called for 16 tablespoons of water?

2. Braylen and Tyce both work at a department store and are paid by the hour. The manager told the boys they both earn the same amount of money per hour, but Braylen and Tyce did not agree. They each kept track of how much money they earned in order to determine if the manager was correct. Their data is shown below.

Braylen: $m = 10.50h$ where h represents the number of hours worked and m represents the amount of money Braylen was paid.

Tyce:

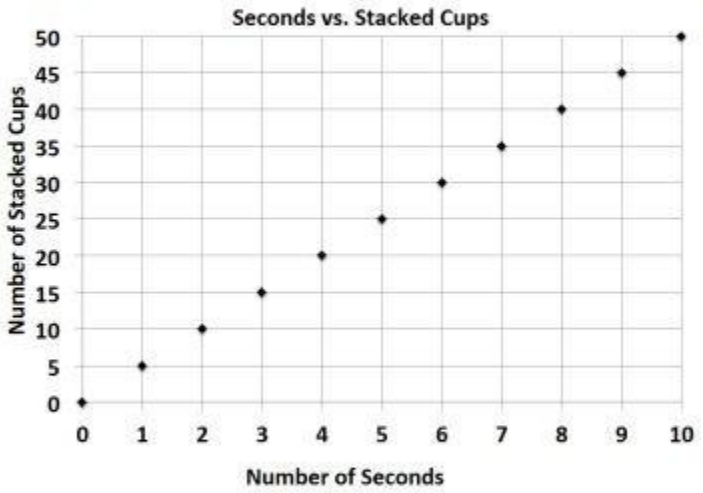
Number of Hours	0	3	6
Money in Dollars	0	34.50	69

a. How much did each person earn in one hour?

b. Was the manager correct? Why or why not?

3. Claire and Kate are entering a cup stacking contest. Both girls have the same strategy: stack the cups at a constant rate so that they do not slow down at the end of the race. While practicing, they keep track of their progress, which is shown below.

Claire:



Kate: $c = 4t$, where t represents the amount of time in seconds and c represents the number of stacked cups.

a. At what rate does each girl stack her cups during the practice sessions?

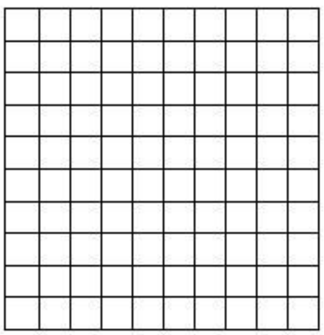
b. Kate notices that she is not stacking her cups fast enough. What would Kate's equation look like if she wanted to stack cups faster than Claire?

Lesson 24: Percent and Rates per 100

Classwork

Exercise 1

Robb's Fruit Farm consists of 100 acres on which three different types of apples grow. On 25 acres, the farm grows Empire apples. McIntosh apples grow on 30% of the farm. The remainder of the farm grows Fuji apples. Shade in the grid below to represent the portion of the farm each type of apple occupies. Use a different color for each type of apple. Create a key to identify which color represents each type of apple.



Color Key **Part-to-Whole Ratio**

Empire ______________ ______________________________

McIntosh ____________ ______________________________

Fuji ________________ ______________________________

Exercise 2

The shaded portion of the grid below represents the portion of a granola bar remaining.

What percent does each block of granola bar represent?

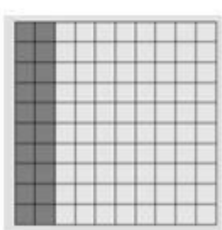
What percent of the granola bar remains?

What other ways can we represent this percent?

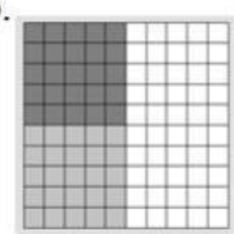
0.01	0.01	0.01	0.01	0.01	0.01	0.01	0.01	0.01	0.01
0.01	0.01	0.01	0.01	0.01	0.01	0.01	0.01	0.01	0.01
0.01	0.01	0.01	0.01	0.01	0.01	0.01	0.01	0.01	0.01
0.01	0.01	0.01	0.01	0.01	0.01	0.01	0.01	0.01	0.01
0.01	0.01	0.01	0.01	0.01	0.01	0.01	0.01	0.01	0.01
0.01	0.01	0.01	0.01	0.01	0.01	0.01	0.01	0.01	0.01
0.01	0.01	0.01	0.01	0.01	0.01	0.01	0.01	0.01	0.01
0.01	0.01	0.01	0.01	0.01	0.01	0.01	0.01	0.01	0.01
0.01	0.01	0.01	0.01	0.01	0.01	0.01	0.01	0.01	0.01
0.01	0.01	0.01	0.01	0.01	0.01	0.01	0.01	0.01	0.01

Exercise 3

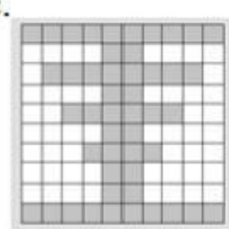
a.



b.



c.



a. For each figure shown, represent the gray shaded region as a percent of the whole figure. Write your answer as a decimal, fraction, and percent.

Picture (a)	Picture (b)	Picture (c)

Lesson Summary

Fractions, decimals, and percentages are all related.

To change a fraction to a percentage, you can scale up or scale down so that 100 is in the denominator.

Example:

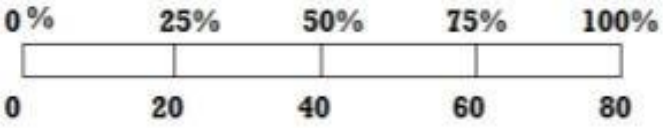
$$\frac{9}{20} = \frac{9 \times 5}{20 \times 5} = \frac{45}{100} = 45\%$$

There may be times when it is more beneficial to convert a fraction to a percent by first writing the fraction in decimal form.

Example:

$$\frac{5}{8} = 0.625 = 62.5 \text{ hundredths} = 62.5\%$$

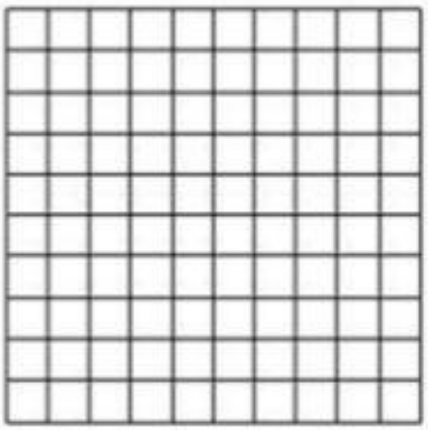
Models, like tape diagrams and number lines, can also be used to model the relationships.



The diagram shows that $\frac{20}{80} = 25\%$.

Problem Set

1. Use the 10×10 grid to express the fraction $\frac{11}{20}$ as a percent.



2. Use a tape diagram to relate the fraction $\frac{11}{20}$ to a percent.

3. How are the diagrams related?

4. What decimal is also related to the fraction?

5. Which diagram is the most helpful for converting the fraction to a decimal? _____ Explain why.

Problem Set

Find the value of each of the following in its simplest form.

1.
   a. $\frac{1}{3} \div 4$ b. $\frac{2}{5} \div 4$ c. $\frac{4}{7} \div 4$

2.
   a. $\frac{2}{5} \div 3$ b. $\frac{5}{6} \div 5$ c. $\frac{5}{8} \div 10$

3.
   a. $\frac{6}{7} \div 3$ b. $\frac{10}{8} \div 5$ c. $\frac{20}{6} \div 2$

4. 4 loads of stone weigh $\frac{2}{3}$ ton. Find the weight of 1 load of stone.

5. What is the width of a rectangle with an area of $\frac{5}{8}$ in^2 and a length of 10 inches?

6. Lenox ironed $\frac{1}{4}$ of the shirts over the weekend. She plans to split the remainder of the work equally over the next 5 evenings.
   a. What fraction of the shirts will Lenox iron each day after school?
   b. If Lenox has 40 shirts, how many shirts will she need to iron on Thursday and Friday?

7. Bo paid bills with $\frac{1}{2}$ of his paycheck and put $\frac{1}{5}$ of the remainder in savings. The rest of his paycheck he divided equally among the college accounts of his 3 children.
   a. What fraction of his paycheck went into each child's account?
   b. If Bo deposited $400 in each child's account, how much money was in Bo's original paycheck?

Lesson Summary

When dividing a fraction by a fraction with the same denominator, we can use the general rule $\frac{a}{c} \div \frac{b}{c} = \frac{a}{b}$.

Problem Set

For the following exercises, rewrite the division expression in unit form. Then, find the quotient. Draw a model to support your answer.

1. $\frac{4}{5} \div \frac{1}{5}$
2. $\frac{8}{9} \div \frac{4}{9}$
3. $\frac{15}{4} \div \frac{3}{4}$
4. $\frac{13}{5} \div \frac{4}{5}$

Rewrite the expression in unit form, and find the quotient.

5. $\frac{10}{3} \div \frac{2}{3}$
6. $\frac{8}{5} \div \frac{3}{5}$
7. $\frac{12}{7} \div \frac{12}{7}$

Represent the division expression using unit form. Find the quotient. Show all necessary work.

8. A runner is $\frac{7}{8}$ mile from the finish line. If she can travel $\frac{3}{8}$ mile per minute, how long will it take her to finish the race?
9. An electrician has 4.1 meters of wire.
   a. How many strips $\frac{7}{10}$ m long can he cut?
   b. How much wire will he have left over?
10. Saeed bought $21\frac{1}{2}$ lb. of ground beef. He used $\frac{1}{4}$ of the beef to make tacos and $\frac{2}{3}$ of the remainder to make quarter-pound burgers. How many burgers did he make?
11. A baker bought some flour. He used $\frac{2}{5}$ of the flour to make bread and used the rest to make batches of muffins. If he used 16 lb. of flour making bread and $\frac{2}{3}$ lb. for each batch of muffins, how many batches of muffins did he make?

Lesson Summary

Connecting models of fraction division to multiplication through the use of reciprocals helps in understanding the *invert and multiply* rule. That is, given two fractions $\frac{a}{b}$ and $\frac{c}{d}$, we have the following:

$$\frac{a}{b} \div \frac{c}{d} = \frac{a}{b} \times \frac{d}{c}.$$

Problem Set

Invert and multiply to divide.

1.

a. $\frac{2}{3} \div \frac{1}{4}$ b. $\frac{2}{3} \div 4$ c. $4 \div \frac{2}{3}$

2.

a. $\frac{1}{3} \div \frac{1}{4}$ b. $\frac{1}{8} \div \frac{3}{4}$ c. $\frac{9}{4} \div \frac{6}{5}$

3.

a. $\frac{2}{3} \div \frac{3}{4}$ b. $\frac{3}{5} \div \frac{3}{2}$ c. $\frac{22}{4} \div \frac{2}{5}$

4. Summer used $\frac{2}{5}$ of her ground beef to make burgers. If she used $\frac{3}{4}$ pounds of beef, how much beef did she have at first?

5. Alistair has 5 half-pound chocolate bars. It takes $1\frac{1}{2}$ pounds of chocolate, broken into chunks, to make a batch of cookies. How many batches can Alistair make with the chocolate he has on hand?

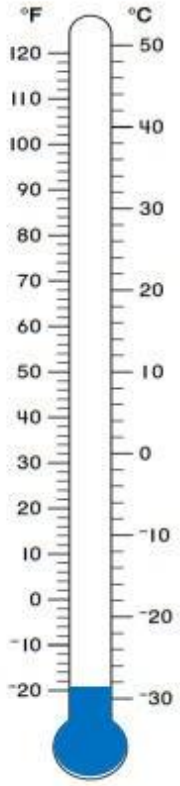
6. Draw a model that shows $\frac{2}{5} \div \frac{1}{3}$. Find the answer as well.

7. Draw a model that shows $\frac{3}{4} \div \frac{1}{2}$. Find the answer as well.

Problem Set

1. Express each situation as an integer in the space provided.
   a. A gain of 56 points in a game _____
   b. A fee charged of $2 _____
   c. A temperature of 32 degrees below zero _____
   d. A 56-yard loss in a football game _____
   e. The freezing point of water in degrees Celsius _____
   f. A $12,500 deposit _____

For Problems 2–5, use the thermometer to the right.



2. Each sentence is stated *incorrectly*. Rewrite the sentence to correctly describe each situation.
   a. The temperature is −10 degrees Fahrenheit below zero.
   b. The temperature is −22 degrees Celsius below zero.

3. Mark the integer on the thermometer that corresponds to the temperature given.
   a. 70°F
   b. 12°C
   c. 110°F
   d. −4°C

4. The boiling point of water is 212°F. Can this thermometer be used to record the temperature of a boiling pot of water? Explain.

5. Kaylon shaded the thermometer to represent a temperature of 20 degrees below zero Celsius as shown in the diagram. Is she correct? Why or why not? If necessary, describe how you would fix Kaylon's shading.

Exercises

The first coordinates of the ordered pairs represent the numbers on the line labeled x, and the second coordinates represent the numbers on the line labeled y.

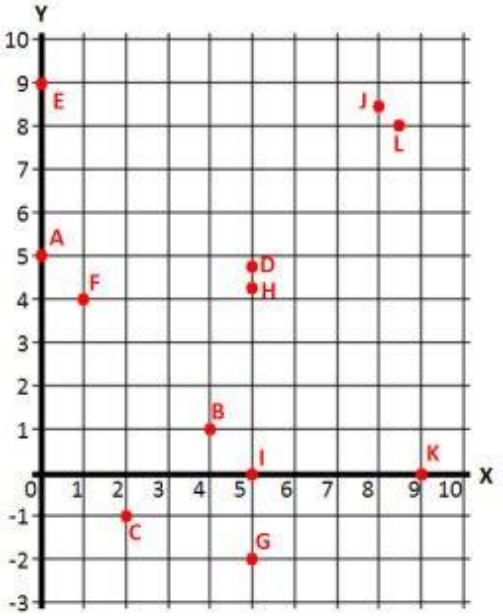
1. Name the letter from the grid below that corresponds with each ordered pair of numbers below.

   a. $(1, 4)$ b. $(0, 5)$

   c. $(4, 1)$ d. $(8.5, 8)$

   e. $(5, -2)$ f. $(5, 4.2)$

   g. $(2, -1)$ h. $(0, 9)$



2. List the ordered pair of numbers that corresponds with each letter from the grid below.

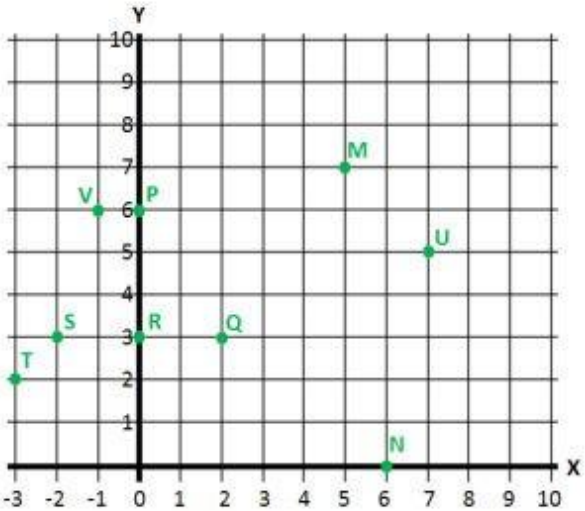
   a. Point M b. Point S

   c. Point N d. Point T

   e. Point P f. Point U

   g. Point Q h. Point V

   i. Point R



Exercises

Substitute the indicated 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. $4 + x = 12$. Substitute 8 for x.

2. $3g > 15$. Substitute $4\frac{1}{2}$ for g.

3. $\frac{f}{4} < 2$. Substitute 8 for f.

4. $14.2 \leq h - 10.3$. Substitute 25.8 for h.

5. $4 = \frac{8}{h}$. Substitute 6 for h.

6. $3 > k + \frac{1}{4}$. Substitute $1\frac{1}{2}$ for k.

7. $4.5 - d > 2.5$. Substitute 2.5 for d.

8. $8 \geq 32p$. Substitute $\frac{1}{2}$ for p.

9. $\frac{w}{2} < 32$. Substitute 16 for w.

10. $18 \leq 32 - b$. Substitute 14 for b.

Exercises

Complete the following problems in pairs. State when the following equations and inequalities will be true and when they will be false.

1. $15c > 45$

2. $25 = d - 10$

3. $56 \geq 2e$

4. $\frac{h}{5} \geq 12$

5. $45 > h + 29$

6. $4a \leq 16$

7. $3x = 24$

Identify all equality and inequality signs that can be placed into the blank to make a true number sentence.

8. $15 + 9$ _____ 24

9. $8 \cdot 7$ _____ 50

10. $\frac{15}{2}$ _____ 10

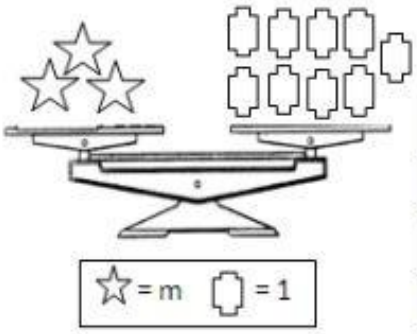
11. 34 _____ $17 \cdot 2$

12. 18 _____ $24.5 - 6$

Solve each equation. Check your answer by plugging it back in. Use INVERSE operations!

$4 + m = 12$	$g + 24 = 52$	$k + 13.02 = 27.6$
$r - 6 = 22$	$26 = 8 + v$	$n - 9 = 16$
$x - 8 = 24$	$27 = 3b$	$w + 7\frac{1}{3} = 13\frac{5}{6}$
$25 = \frac{x}{5}$	$c - 3 = 4$	$5z = 15$
$95 = e + 36$	$143 = n - 27$	$4 = \frac{a}{12}$
$\frac{t}{5} = 25$	$7m = 28$	$\frac{m}{6} = 7$

Select the equation that best represents each model below.

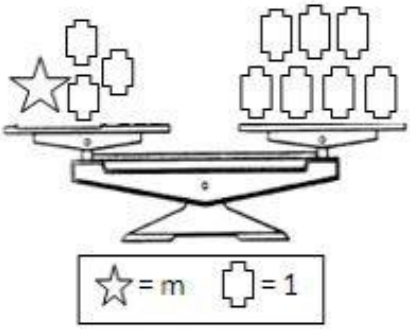


A) $3 + m = 9$

B) $3 + 3m = 9$

C) $3m = 9$

D) $3 - m = 9$



A) $3m = 7$

B) $3 + 3m = 10$

C) $3m + 3 = 7$

D) $3 + m = 7$

Solve and "Check" by plugging your answer back in! Use the **INVERSE** operation!

1) $y + 19 = 23$	2) $5z = 15$	3) $p - 6 = 2$
4) $27 = 3m$	5) $\frac{m}{4} = 16$	6) $\frac{x}{6} = 42$
7) $\frac{p}{5} = 30$	8) $25 = \frac{x}{5}$	9) $m - 18.22 = 37.8$

10) How could you solve for the variable ***m*** in this equation? $\frac{m}{4} = 12$

a) Multiply both sides of the equation by 4.
b) Divide both sides of the equation by 4.
c) Multiply both sides of the equation by 12.
d) Divide both sides of the equation by 12.

11) **What method would you use to solve 6 + m = 15?**

a) Subtract 6 from 6 + m, and subtract 6 from 15
b) Subtract 6 from 6 + m, and subtract 15 from 15
c) Divide 6 + m by 6, and divide 15 by 15
d) Divide 6 + m by 6, and divide 15 by 6

12) **What method would you use to solve 7m = 12?**

a) Multiply 7 from 7m, and Multiply 7 from 12
b) Multiply 7 from 7m, and Multiply 12 from 12
c) Divide 7m by 7, and divide 12 by 12
d) Divide 7m by 7, and divide 12 by 7