

Summer Review for students who have COMPLETED Math 7 or Math 7 for 6th Graders

Show your work. Use extra paper if needed and attach it to the packet.

Week #1

Name: _____

1. Simplify:

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

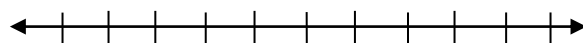
2. The town of Pratt has a population of about 8,260,000. Express this number in scientific notation.

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

$$a^2 + |ab|$$

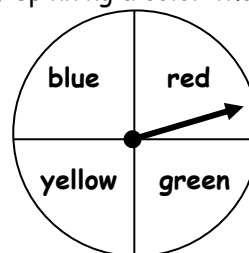
4. Solve and graph the solution to the inequality on the number line.

$$4 \geq x + 8$$



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 not yellow?



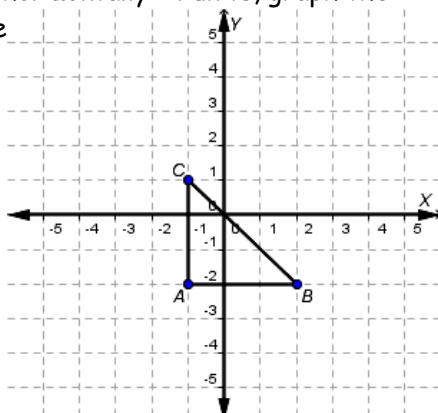
7. James owes \$185 on his credit card. He makes a \$65 payment and then purchases \$87 worth of clothes at a local department store. What is the integer that represents the balance owed on the credit card?

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

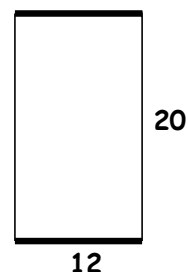
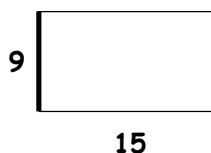
$$75 + 87 + 25 = 75 + 25 + 87$$

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.



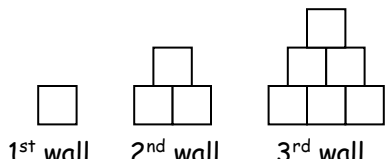
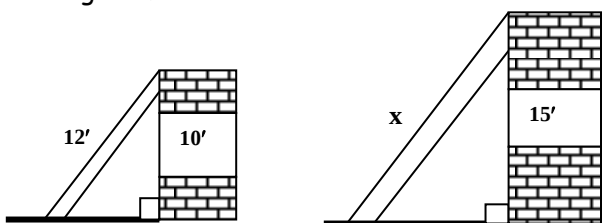
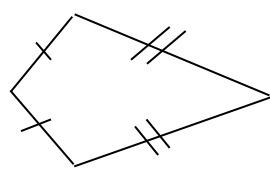
10. The rectangles below are similar. Write a proportion to show the relationship between the corresponding sides.



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Week #2

Name: _____

1. Simplify: $-3(14 - 20) + 2$	2. Kia's height is one-fourth of Sammy's height. If Kia is $1\frac{1}{2}$ feet tall, how tall is Sammy?										
3. <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 6</u> C. the product of 3 and k <u>less 6</u> 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	4.  1st wall 2nd wall 3rd wall How many bricks are in the 3 rd wall? _____ How many bricks would be in the 6 th wall? ____ Explain the pattern.										
5. Draw an isosceles trapezoid and label all congruent and parallel parts.	6. Solve: $13 = -3x - 8$										
7. Two ladders leaning against two walls happen to form two similar right triangles. What is the height of ladder x ? 	8. What is the most specific name to classify this plane figure?  What are other names that accurately classify this figure?										
9. 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.	10. A card will be randomly selected from the cards shown below, and then replaced. A second card will then be selected. <table style="margin: auto; text-align: center;"><tr><td>4</td><td>8</td><td>12</td><td>16</td><td>20</td></tr><tr><td>24</td><td>28</td><td>32</td><td>36</td><td>40</td></tr></table> What is the probability that the first card is a multiple of 8 and the second card is a perfect square?	4	8	12	16	20	24	28	32	36	40
4	8	12	16	20							
24	28	32	36	40							

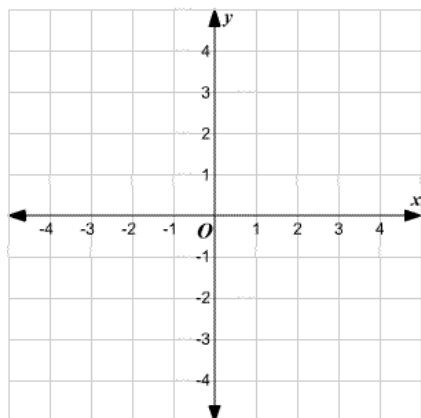
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Week #3

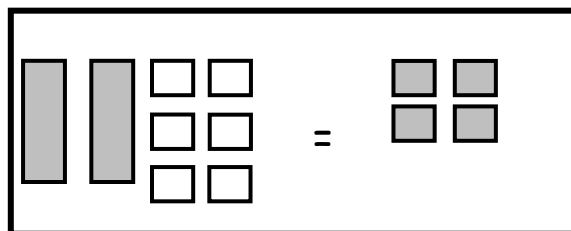
Name:

1. Graph the equation:

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



2. What value of x makes the model true?



Key:

$$\text{white bar} = x$$

$$\text{white square} = 1$$

$$\text{gray bar} = -x$$

$$\text{gray square} = -1$$

3. What is 27,430,000 in scientific notation?

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

5. 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 —

6. 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?

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

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

9. 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?

10. Circle all expressions that are equivalent to 4.

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

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Week #4

Name:

1. 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.

2. Rewrite the exponential expression as a rational number:

$$10^{-4}$$

3. 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.

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

4. 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?

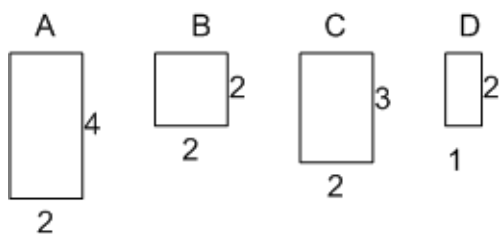
5. The Munchery Restaurant advertises that you can have a different lunch combination every day of the year. They offer 12 different kinds of soups, 6 different sandwich meats and 4 different kinds of bread. Is their claim valid? Explain.

6. 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?

7. Explain how a rectangle is different from a rhombus.

8. Solve: $2x - (-13) = 33$

9. Which two rectangles are similar?



10. 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 $\frac{3}{15}$?

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Week #5

Name:

1. 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.

2. 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.

3. Solve: $4x - 2 = -26$

4. Solve: $-5z \geq 15$

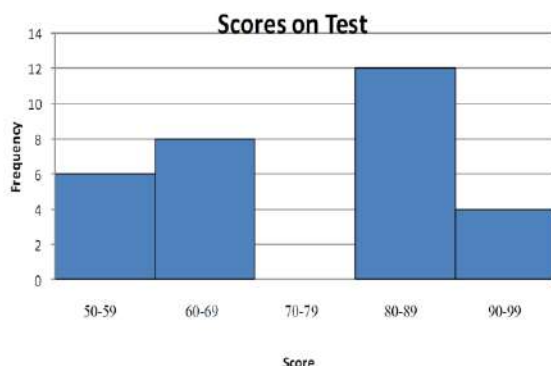
5. Holly decided to start an exercise program. She began by jogging for 1 min. on the first day, and then each new day she doubled her previous day's jogging time. She did this for 7 days. Make a table to show each day with time jogging each day. How long would she jog on the 7th day?

6. At night the average surface temperature on the planet Saturn is $-150^{\circ}C$. During the day the temperature rises $27^{\circ}C$. What is the temperature on the planet's surface during the day?

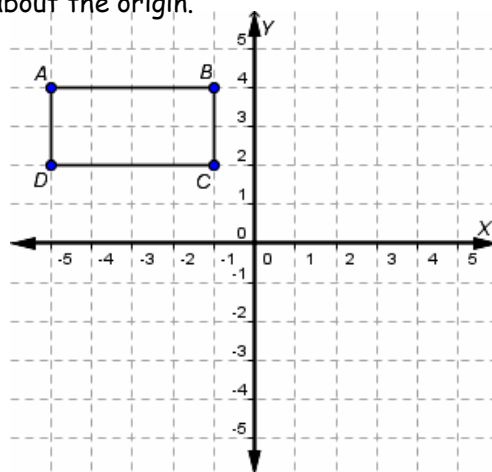
7. Mr. Pucelli is making a histogram to show the scores on a test. Complete the missing bar in the histogram to show scores from 70-79.

```

5 | 0 5 5 5 5 5
6 | 0 0 0 0 5 5 5
7 | 0 0 5 5 5 5 5 5
8 | 0 0 0 5 5 5 5 5 5 5
9 | 0 0 0 5
    
```



8. Rotate the rectangle clockwise 180 degrees about the origin.



Which best describes the location of the image of vertex C ?

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Week #6

Name:

1. 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?

2. 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.

3. A rectangle has a perimeter of 30 m. The length is 10 m. Solve the following equation to find the width.

$$2w + 2(10) = 30$$

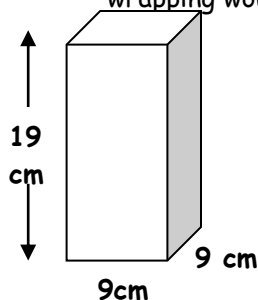
4. The planet Mars is about 142,000,000 miles from the sun.

Express the number in scientific notation.

5. Complete the table.

Input X	Function Rule	Output Y
2	$3(2)$	6
6	$3(6)$	
	$3(8)$	24
10		

6. The box shown below needs to be wrapped for shipping. How many square centimeters of wrapping would be needed to cover the box?



7. 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?

8. 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?

9. Which is greater, 3.3×10^{-1} or 0.3? By how much?

10. Solve: $-2 + 5x = -14$

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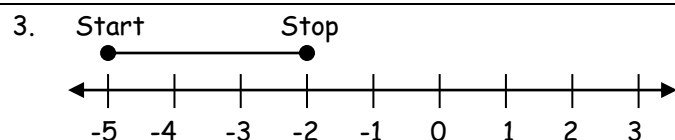
Week #7

Name: _____

1. 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 ?

2. Evaluate this expression for $n = 3$:

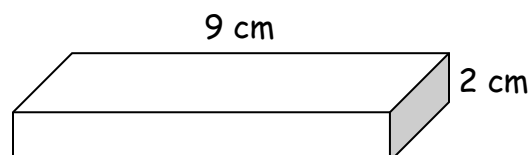
$$n + 10 \div 2 - (n + 7)$$



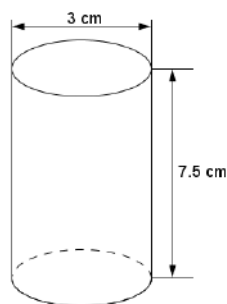
Multiple responses: Select all equations that are true and that could be represented by the model above.

- | | | | |
|---|------------------|---|---------------|
| A | $-5 + -3 = -2$ | D | $-3 + 5 = 2$ |
| B | $-2 + -3 = -5$ | E | $-5 + 3 = -2$ |
| C | $-5 - (-3) = -2$ | | |

4. 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?

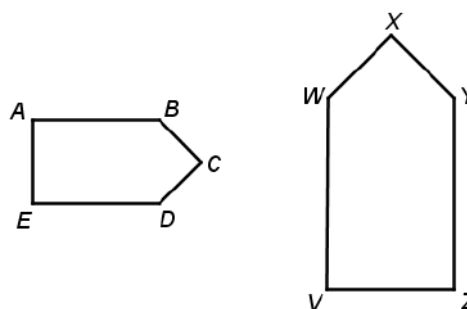


5. Mrs. Smith needed to fill the sandbox at her preschool. The sand came in cylinders like the one pictured below.

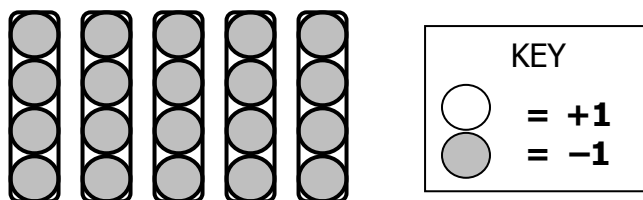


To the nearest hundredth, determine how much sand each cylinder held.

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



7. The model represents which equation?



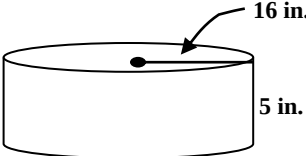
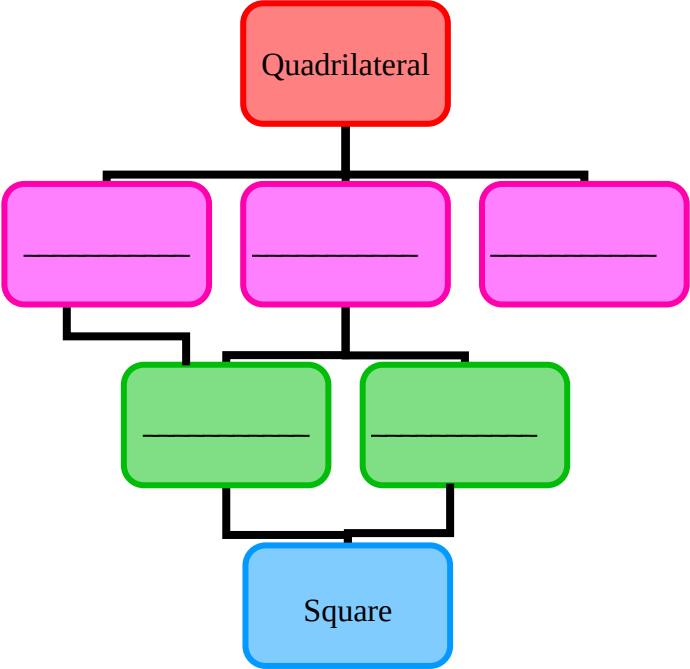
- | | | | |
|---|---------------|---|---------------|
| A | $5(-4) = -20$ | C | $-5(4) = 20$ |
| B | $5(4) = -20$ | D | $-5(-4) = 20$ |

8. 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.

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Week #8

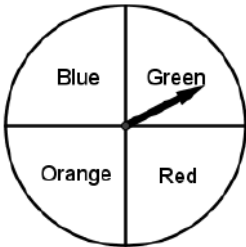
Name: _____

1. Evaluate $10^4 \times 10^{-4}$.	2. Solve: $2n + 3 = 11$
3. Susan can swim 30 laps in one hour. At this rate, how many laps could she swim in two and a half hours?	4. Consider the sequence 1, 4, 9, 16, ... What expression could you use to find the nth term?
5. 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?	6. Find the surface area. Use 3.14 for π. Round decimal answers to the nearest tenth.  $C = \pi d$ $A = \pi r^2$
7. Write an equation for the following: -4 is 6 less than an unknown number. Solve the equation.	8. Complete the missing terms in the proper place in the diagram to show the organization of quadrilaterals by common attributes. The missing terms are: <i>rectangle, trapezoid, kite, rhombus, and parallelogram</i>.  <pre> graph TD Q[Quadrilateral] --> P1[] Q --> P2[] Q --> P3[] P2 --> G1[] P2 --> G2[] G2 --> S[Square] </pre>
9. 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?	

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Week #9

Name:

1. Draw a parallelogram, and label all congruent segments, congruent angles, and parallel sides.	2. The price of a CD is \$16. If the sales tax is 4%, what will be the total price of the CD?												
3. 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? 	4. 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.												
5. Complete the table of values that satisfy $y = 3x - 5$ <table border="1" data-bbox="396 993 626 1241"> <thead> <tr> <th>x</th><th>y</th></tr> </thead> <tbody> <tr> <td>-2</td><td></td></tr> <tr> <td>-1</td><td></td></tr> <tr> <td>0</td><td></td></tr> <tr> <td>1</td><td></td></tr> <tr> <td>2</td><td></td></tr> </tbody> </table>	x	y	-2		-1		0		1		2		6. If the expression $T+10$ indicates 10 seconds after "take-off" of a space shuttle, what expression indicates 10 seconds before the take-off?
x	y												
-2													
-1													
0													
1													
2													
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?	8. The Smiths went to a restaurant. The bill was \$27.70. If they gave a 15% tip, how much was the tip?												
9. 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.	10. If the height of a rectangular prism is cut in half, what would happen to its volume?												

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Week #10

Name: _____

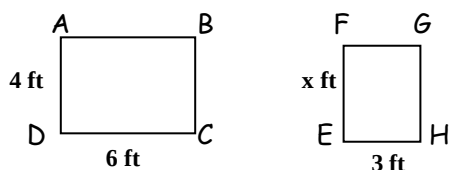
1. There are 169 chairs in the gymnasium that need to be arranged in rows and columns. How can they be divided so that there are an equal amount of rows and columns?

2. 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?

3. Solve: $3 = -7 - x$

4. Solve: $5n - 2 = -9$

5. Rectangle ABCD is similar to rectangle EFGH. Find the value of x .



6. 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?

7. Your family spends 30% of its monthly income on food. If your family earns \$2000 a month, how much is spent on food?

8. Which property is shown below?

$$2(3 + 4) = 2(3) + 2(4)$$

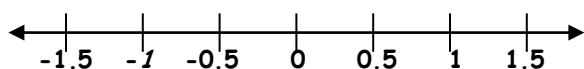
9. There are 24 marbles in a bag. Six marbles are red, eight are green and ten are black. Find the probability of choosing a green marble if one marble is chosen at random. Express the probability:

as a ratio _____

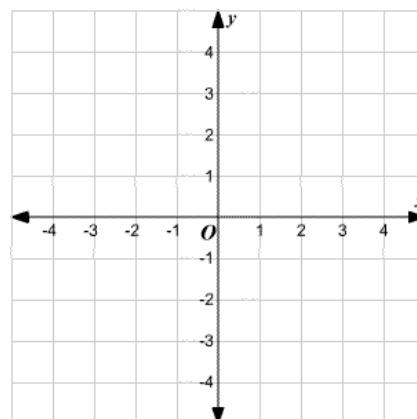
as a decimal _____

as a percent _____

as a point on a number line:



10. The preimage of rectangle $CATS$ has vertices $C(-1, 2)$, $A(1, 2)$, $T(1, -2)$ and $S(-1, -2)$.



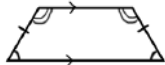
Graph the dilation of rectangle $CATS$ by a scale factor of 2.

ANSWER KEY

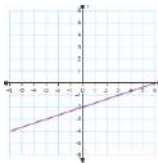
Week 1

- 4
- 8.26×10^6
- 15
- $x \leq -4$; solid [closed] circle at -4, with shading to the left
- 15%
- $\frac{3}{4}$
- 207
- Commutative Property of addition
- Image has vertices: $A'(-5,1)$, $B'(-2,1)$, $C'(-5,4)$
- $9/12 = 15/20$

Week 2

- 20
- 6 ft
- B and F
- 6 ; 21; Each time the number of new bricks increases by 1.
- Sample:

- 7
- 18'
- Kite; quadrilateral, polygon
- 5%
- $3/20$

Week 3

- 
- 5
- 2.743×10^7
- \$160
- 250
- 18 meters below the surface
- 6
- 320,000
- 7.5 feet
- a, c, h, i, l

Week 4

- $13/52 \times 12/51$
- 1/10000
- \$275; 17 months
- Sample: $19+m=31$; $m = 12$
- No. Only 288 different combinations are possible, and there are 365 days in a year.
- \$36
- A rectangle has four right angles; a rhombus has four congruent sides.
- 10
- A and D
- Identity property of multiplication

Week 5

- 100; show your strategy.
- \$1080
- 6
- $z \leq -3$
-

Day	1	2	3	4	5	6	7
Minutes	1	2	4	8	16	32	64

- She jogs 64 minutes on 7th day.
- 123 degrees Celsius
 - The middle bar (70-79) would be shaded to a frequency of 9 (halfway between 8 and 10).
 - $C'(1, -2)$

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Week 6

1. \$160
2. The theoretical probability of flipping heads in one toss is $\frac{1}{2}$. So in theory, we would expect that for 10 tosses, heads should appear 5 times. However, each flip is independent and during the experiment heads may not appear exactly 5 times. But it is likely that the number of times heads appears is close to 5.
3. 5
4. 1.42×10^8
5. 1st missing output: 18; missing input: 8; missing function rule: $3(10)$; 2nd missing output: 30
6. 846 cm^2
7. 32 feet
8. 729
9. 3.3×10^{-1} is greater, by 0.03
10. $-2 \frac{2}{5}$

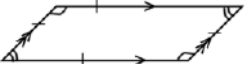
Week 7

1. 360
2. -2
3. B, C, E
4. 45 cm^2
5. 52.99 cm^3
6. 6
7. A
8. 6 combinations: Tree shows sugar branching to chocolate, vanilla and strawberry, followed by cake branching to chocolate, vanilla, and strawberry.

Week 8

1. 1
2. 4
3. 75 laps
4. n^2
5. 350 miles
6. $2,110.08 \text{ in}^2$
7. $-4 = x - 6$; 2
8. First row: Quadrilateral
Second row in this order: Kite, Parallelogram, Trapezoid.
Third row in this order: Rhombus, Rectangle
Fourth row: Square
9. 216 ft^3

Week 9

1. 
2. \$16.64
3. The theoretical probability of spinning red once is $\frac{1}{4}$. Therefore, out of 8 spins, red would be expected to appear 2 times, since $2/8 = \frac{1}{4}$. Mike spun red 3 times, which is more than the expected 2 times in theory.
4. B
5. -11, -8, -5, -2, 1
6. T - 10
7. On the 8th person's turn
8. \$4.16
9. $(36 - 12)/6$; 4 brownies each
10. The volume would also be half.

Week 10

1. In 13 rows of 13 chairs
2. 512 in^3
3. -10
4. $-1 \frac{2}{5}$
5. 4.5 feet
6. \$6.40
7. \$600
8. Distributive
9. $\frac{1}{3}$, $0.\bar{3}$, 33 $\frac{1}{3}$ %, point on numberline should be placed between 0 and 0.5, slightly closer to 0.5.
10. The graph should have the new vertices: $(-2, 4)$, $(2, 4)$, $(-2, -4)$, $(2, -4)$