Summer Review for students who have COMPLETED Math 6

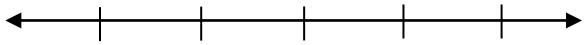
Show your work. Use extra paper if needed and attach it to the packet.

Week #1

Name:

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

2. Graph: $x \leq 3$



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

3. 6 out of 50 states are in the New England region. What ratio of the United States is **not** in New England?

4. Write each repeated multiplication in exponential form:

$3 \times 3 \times 3 \times 3$ _____

$5 \times 5 \times 7 \times 7 \times 7$ _____

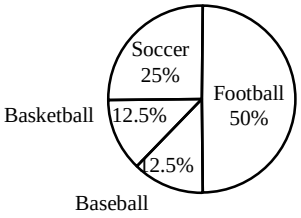
$4 \times n \times n \times n \times \mathbf{m} \times \mathbf{m}$ _____

5.

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

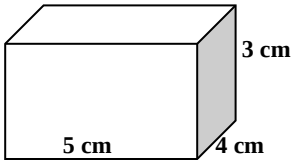
b) How many students said football was their favorite sport?

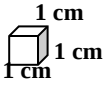
_____



200 Sixth Graders Were Surveyed

6.





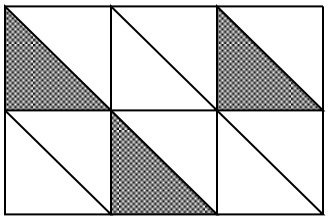
a) Estimate the number of centimeter cubes you will need to fill the large box (rectangular prism). _____

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? _____

7. 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?

8. What percent of the figure below is shaded?



9. Find the value of the expressions below.

2^1 = _____ 2^2 = _____

2^3 = _____ 2^4 = _____

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

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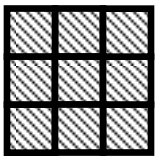
Week #2

1. If 6 cans of soup cost $1.50, how much will 9 cans cost?	2. Write an exponential expression to represent the number of small squares in the diagram. 
3. Jim's backpack weighs 3 kg when filled. How many pounds is this, approximately?	4. Consider the inequality statement: $2 \geq x$ Write another inequality statement that means the same thing about the values of 2 and x.
5. Is the value of these expressions the same? Explain, and show your work. $4 \bullet 6 - 4$ $4\,(6 - 4)$	6. 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%.
7. 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?"	8. True or False. All triangles are congruent. _____ Explain your answer.
9. 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?	10. 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. _____

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Week #3

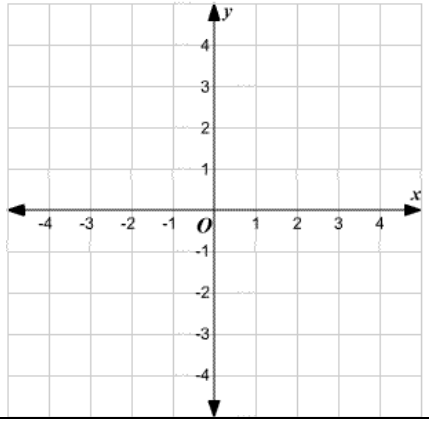
1. State at least one way in which the patterns are the same and at least one way in which the patterns are different.

   a. 15, 20, 25, 30, 35

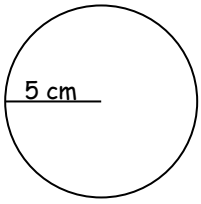
   b. 15, 10, 5, 0, -5

2. Graph these ordered pairs:

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



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



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

   n x 0 = _____

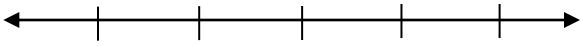
5. Circle the smallest integer. Draw a number line showing all four numbers to prove your answer.

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

6. 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.

7. 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?

8. Graph: $x > -2$



9. Compare. Use >, <, or =.

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

   Which fraction is larger? _____

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

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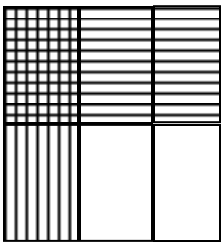
Week #4

1. Lina is making trail mix for a hiking trip. She has 2 $\frac{1}{2}$ cups of peanuts, 3 $\frac{1}{4}$ cups of raisins, and 2 2/3 cups of banana chips. How many cups of mix can she make?

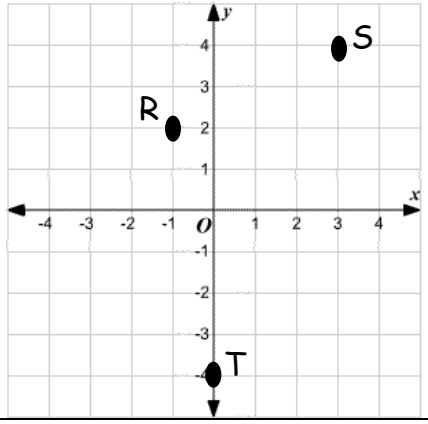
2. How do you know that 50 is not a perfect square?

3. Create a multiplication problem whose product is 1/6, indicated by the double-shaded part of the square below.



____ × ____ = $\frac{1}{6}$

4. Write the coordinates of the points shown:



5. Circle the numbers that are the same as 50%.

$\frac{1}{2}$ 5% 0.5 5 $\frac{5}{10}$ .50

6. This is 25% of a certain square, ABCD.

Draw 100% of square ABCD.

7. 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.

8. There are 25 paper plates in a package. How many packages are needed if 160 students are to attend a picnic.

9. Logical thinking puzzle:
After dinner and dessert, the five friends left the restaurant.

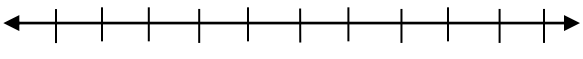
- Dana left after Paul but before Tyler.
- Paul left between Alma and Chris.
- Chris was the third person to leave.

In what order did the friends leave?

10. 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.)



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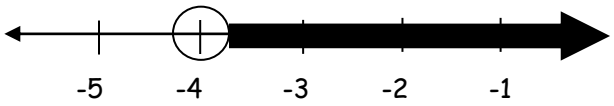
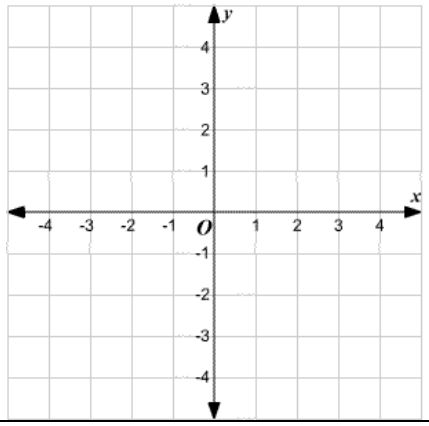
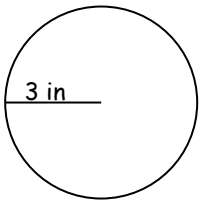
Week #5

1. Explain why the probability of an event must be in between 0 and 1.	2. The ratio of girls to boys in a group is 3 to 5. Write this ratio in two other ways.
3. Write the inequality statement that describes the graph below.  	4. Find the value of the expression below: $\frac{16-9+(3\times5)}{3}$
5. Multiply. $2\frac{1}{3} \times 1\frac{1}{5}$	6. How do you know that 14 is not in the sequence 0, 4, 8, 12, ….?
7. Graph: A (2,1). Graph four more points whose distance from A is 3 units.  	8. Use the formula $C = 2\pi r$ to find the circumference of this circle. $\pi = 3.14$ 
9. Create a diagram to represent the expression below. 4^2	10. 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?

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Week #6

1. The equation 6 x 1 = 6 is an example of which property of multiplication?

2. Which temperature is warmer, -2 degrees Fahrenheit or –17 degrees Fahrenheit?

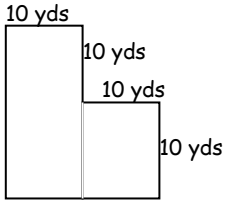
3. Solve.

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

4. In the figure below, all angles are right angles.

What is the area? _____

What is the perimeter? _____

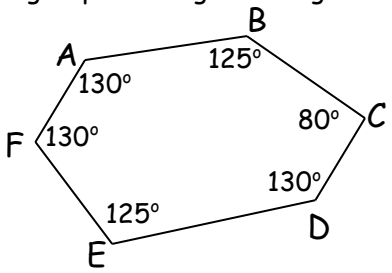


5. Solve.

$$a + 6\frac{1}{2} = 12$$

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

6. In the polygon below, identify any pairs or groups of congruent angles.

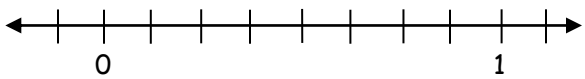


7. Joan has planted 3/5 of her garden. What percent is planted?

8. 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?

9. Place a point on the number line to represent the value three-fourths.



10. Evaluate.

$3^2 \bullet 2^3 =$

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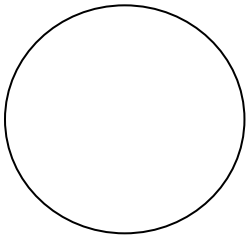
Week #7

1. 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.



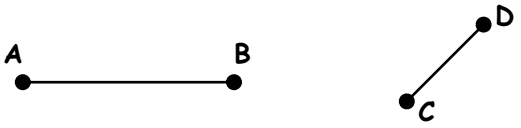
2. Compare. Use >, <, or =.

100% _____ 1

3. What does the phrase "measure of center" mean?

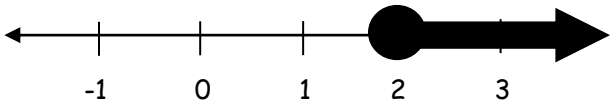
4. A new soccer field needs to be covered with sod. How many square meters of sod are needed if the field's measurements are 100 meters by 73 meters? Write the appropriate <u>formula</u> and show your work.

5. Do these line segments appear to be congruent? Why?



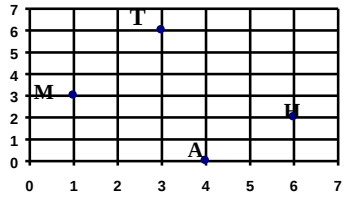
6. Theater tickets cost $23.00 each. Will $450.00 be enough for 20 students to attend the theater? Show your work.

7. Write the inequality statement that describes the graph below.



8. Give the coordinates for each point on the coordinate grid.

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



9. Complete the pattern.

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

10. Draw a representation of this problem:

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

Summer Review for students who have COMPLETED Math 6

Week #8

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.

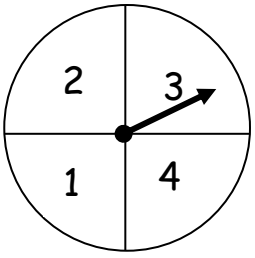
5. Find the product of two and one-half and four and three-fourths. Express your answer as a mixed number.

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

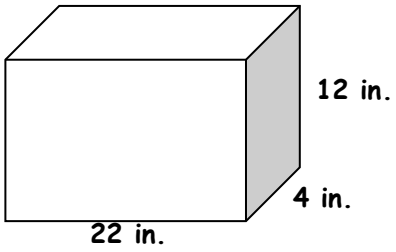
7. I ate half of the apple pie. My brother ate a quarter of the pie. How much of the pie is left?

   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?

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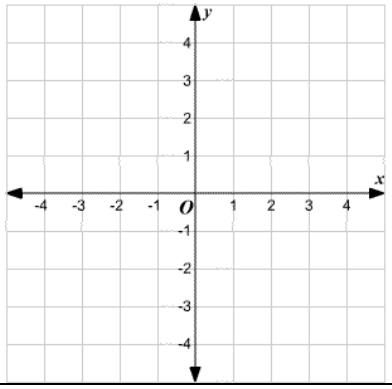
Week #9

1. The Washington Monument is one of Washington D.C.'s most famous monuments. The height is about 10 times the length of the base. If the base measures $55\frac{1}{8}$ feet in length, about how high is the monument?	2. Pencils sell for $1.80 per dozen. How much will 15 pencils cost?
3. Find the value of y. $y = 2 + (4 \times 9) \div 12$	4. Divide $\frac{5}{8}$ by 2.
5. Margaret slept for $9\frac{2}{3}$ hours last night, and Dolores slept for $6\frac{3}{4}$ hours. How many more hours of sleep did Margaret get than Dolores?	6. Graph these ordered pairs: J (-1, -2) K (0, 1) L (-3, 4) 
7. In what ways are the square and parallelogram alike? In what ways are they different? 	8. Complete the pattern: 1, 4, 9, 16, 25, 36, _____, _____, _____
9. The coach ordered 3 boxes of football jerseys. Each box contained 6 packages. Each package contained one dozen jerseys. How many jerseys did he order?	10. Create an equation to illustrate the inverse property for multiplication.

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Week #10

1. Complete the equation.

   17% = $\frac{\_\_\_\_\_}{100}$ = _____ (decimal)

2. Complete the pattern.

   2, $2\frac{1}{4}$, $2\frac{1}{2}$, $2\frac{3}{4}$, _____, _____, _____

3. While making cookies, William accidentally over-baked and burned many of the cookies. His "burned-to-unburned" ratio was 1 to 3. He made 45 unburned cookies. What percent of the total cookies were burned?

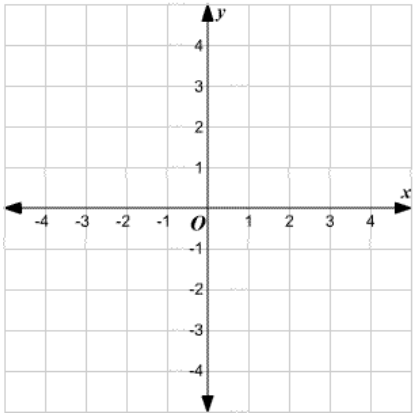
4. Complete by writing <u>greater</u> or <u>less</u>.

   a) Any positive integer is _____ than zero.

   b) Any negative integer is _____ than zero.

   c) Any positive integer is _____ than any negative integer.

5. Graph <u>four</u> different points that meet this criteria:
   The x-coordinate is 2 units from the y-axis & the y-coordinate is 3 units from the x-axis.



6. Ned, Jed, and Fred collect matchbox cars. The table shows how many of each color they own.

	Red	Blue	Black
Ned	4	3	1
Jed	1	3	4
Fred	1	0	7

   Construct a circle graph to show the percentage of total cars by <u>color</u> (red, blue, and black).

7. Julia read for $2\frac{1}{2}$ hours on Saturday, $1\frac{3}{4}$ hours on Sunday and 5/6 of an hour on Monday. Write an expression to show the total amount of time Julia read. Then simplify it to find the result.

8. Using the information from problem #6, construct a circle graph to show the percentage of total cars by <u>owner</u> (Ned, Jed, & Fred).

9. An advertisement says that 4 out of 5 dentists prefer Trident gum. What percent is this?

10. It costs $23.25 to fill up the gasoline tank on an average compact car. If the tank holds 15 gallons, what is the cost per gallon?

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ANSWER KEY

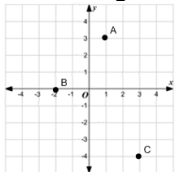
Week 1

1. 2/5; 0.4
2. Shaded [closed] circle at 3, shading to the left of 3; inequality
3. 22/25
4. 3^4; $5^2 \times 7^3$; $4n^3m^2$
5. a) soccer b) 100
6. a) 60 b) 20 c) 3
7. 5' 6 $\frac{1}{4}$"
8. 25%
9. (going across) 2, 4, 8, 16
10. Sample: 4 + 0 = 4

Week 2

1. $2.25
2. 3^2
3. About 6.6 lbs.
4. $x \leq 2$
5. No, since the parentheses changes the order of operations. The results are 20 and 8.
6. 4/5; 0.8; between 0.5 and 1, a little off-center and closer to 1; any drawing with 4 parts out of 5 shaded.
7. $\frac{1}{4}$
8. False. Congruent means they would have the same side lengths and angle measures. Not all triangles have the same lengths and measures.
9. 3/8
10. a) always b) sometimes

Week 3

1. Same: both are changing by a constant value of 5; Different: a is increasing while b is decreasing.
2. 

3. 78.5 cm^2
4. 0
5. -5; numberline should show the numbers appropriately spaced and in this order from left-to-right: -5, -1, 0, 5
6. 1040 ft
7. 25 2/3 yds^2
8. Unshaded (open) circle at -2; shading to the right of -2.
9. <; 4/5 is larger
10. 540 in^3

Week 4

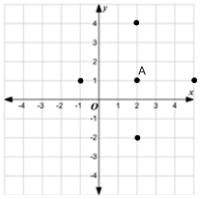
1. 8 5/12 cups
2. No whole number multiplied by itself is 50; closest are: 7x7=49 and 8x8=64. The square root of 50 would be a number between 7 & 8.
3. $\frac{1}{2} \times 1/3 = 1/6$
4. R(-1, 2); S(3, 4); T(0,-4)
5. $\frac{1}{2}$, 0.5, 5/10, and .50
6. ABCD would be four times the size of the given square.
7. 110; mode not so helpful here, since there is not a number that repeats enough to say it represents the typical value.
8. 7 packages (there would be 15 leftover plates)
9. Alma, Paul, Chris, Dana, Tyler
10. 3

Week 5

1. The probability of an event must be between 0 and 1, because 0 represents no chance of the event happening, and 1 represents the event definitely happening. Probability may be in between these two absolutes, but not beyond.
2. 3/5; 3:5
3. 3. $x > -4$

Week 6

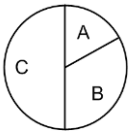
1. Identity
2. -2 degrees Fahrenheit is warmer
3. 2/3
4. 300 yds^2; 80 yds
5. 5 $\frac{1}{2}$; equation
6. B & E are congruent; A, F, & D are congruent.
7. 60%
8. 32 – 6 = N; 26

4. 4. 7 1/3
5. 5. 2 4/5
6. The sequence increases by 4… 12+4=16, which skips 14.
7. 

8. 18.84 inches
9. Sample: a square with length and width of 4
10. About 3.1 hours

9. The point would go on the mark that is two units before 1.
10. 72

Week 7

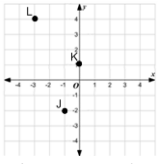
1. 

2. =
3. A measure of center is a way of communicating the "typical" value of the data set, usually in terms of the average, middle, or most frequent value in the set (mean, median, and mode).
4. A = lw; 7300 m^2
5. No, they do not appear to be the same length.
6. No, they would need another $10.
7. $x \geq 2$
8. M(1,3), A(4,0), T(3,6), H(6,2)
9. 32, 64, 128
10. Sample: 

Week 8

1. 0.50, 90%, 100%, 3/2
2. 5 degrees Fahrenheit
3. 281.75 ft
4. 4/7
5. 11 7/8
6. $600
7. $\frac{1}{4}$
8. $\frac{1}{4}$
9. 1056 in^3
10. 12

Week 9

1. 551 $\frac{1}{4}$ ft
2. $2.25 if sold individually; if only sold by the dozen, would need 2 dozen, costing $3.60.
3. 5
4. 5/16
5. 2 11/12
6. 

7. Alike: both are quadrilaterals; Different: The square must have four congruent sides and four right angles.
8. 49, 64, 81
9. 216 jerseys
10. Sample: 3 x 1/3 = 1

Week 10

1. 17; 0.17
2. 3, 3 $\frac{1}{4}$, 3 $\frac{1}{2}$
3. 25%
4. a) > b) < c) >
5. Ordered pairs: (2, 3), (-2, 3), (-2, -3), (2, -3)
6. Circle shows black 50%, red 25%, blue 25%
7. $2\frac{1}{2} + 1\frac{3}{4} + 5/6$; 5 1/12
8. Circle shows Ned 50%, Jed about 17%, and Fred about 33%.
9. 80%
10. $1.55 per gallon