

2016 Mathematics Standards of Learning

6.1

1. Write equivalent ratios across each row. All fractions must be simplified.

Using a colon	Using the word "to"	Fraction Notation
5:9		
	3 to 12	
		$\frac{2}{7}$

2. Identify all of the ratios that could be used to represent the number of lawns to the number of hours in the following word problem.

John can mow 3 lawns in 6 hours

6:12	6 to 3	3 to 6	6:3	1:2
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3. Ms. Larson bought 4 red roses and 16 purple tulips for the front yard. What is the ratio of roses to the total number of flowers?
- A. 1:4
B. 4:1
C. 1:5
D. 4:5

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4. A pet store has 40 animals for sale and 15 of them are puppies! What is the ratio of animals that are *not* puppies to the total number of animals for sale at the pet store?
- A. $\frac{5}{8}$
B. $\frac{3}{8}$
C. $\frac{5}{3}$
D. $\frac{8}{5}$
5. At Centerville Middle School, there are 120 students in sixth grade, and 80 of those students are girls. What is the ratio of girls to boys in Centerville's sixth grade?
- A. 2 to 3
B. 3 to 2
C. 2 to 1
D. 1 to 2
6. Benjamin has 10 green marbles, 15 red marbles, and 5 yellow marbles in a box. What is the ratio of green marbles to all of the marbles in the box?
- A. $\frac{1}{3}$
B. $\frac{1}{2}$
C. $\frac{3}{1}$
D. $\frac{2}{1}$

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7. A restaurant sells 40 bowls of soup and 8 bowls of chili each day. What is the ratio of bowls of chili to bowls of soup?
- A. 1:5
- B. 1:4
- C. 1:3
- D. 2:5

8. The table shows the number of video games sold at Max's Electronics.

Video Games Sold at Max's Electronics on Saturday

Games	Number Sold
Baseball	12
Car Race	20
Soccer	15
War Zone	8




What is the ratio of War Zone games sold to Baseball games sold?

- A. 1 to 2
- B. 2 to 3
- C. 2 to 5
- D. 3 to 4

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6.2a

- Complete the table with equivalent fractions, decimals, and percentages. The red sections represent the numerator. All decimals should be rounded to the nearest thousandth and all fractions must be written in simplest form.

Picture	Fraction	Decimal	Percent
			
			
			

- Which two answer choices represent the illustration below?



$$3\frac{5}{8}$$

$$458\%$$

$$3.58$$

$$\frac{37}{8}$$

$$362.5\%$$

$$0.625$$

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3. Write the equivalent decimal and percent for $\frac{4}{7}$. Round the decimal to the nearest thousandth.

Decimal

Percent

4. Circle all of the numbers that are equivalent to $\frac{2}{9}$.

0.22 $\bar{2}$

29%

22.2%

0.29

22 $\frac{2}{9}$ %

0.29 $\bar{9}$

5. Which decimal and fraction are equivalent to 23%?

A. 2.3 and $\frac{23}{1}$

B. 2.3 and $\frac{23}{10}$

C. 0.23 and $\frac{23}{100}$

D. 0.23 $\frac{23}{1000}$

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6. Jordan made a new playlist for his upcoming road trip and 25% of the songs are hip hop. Which fraction represents the number of songs on Jordan's playlist that are *not* hip hop?

A. $\frac{1}{4}$

B. $\frac{2}{5}$

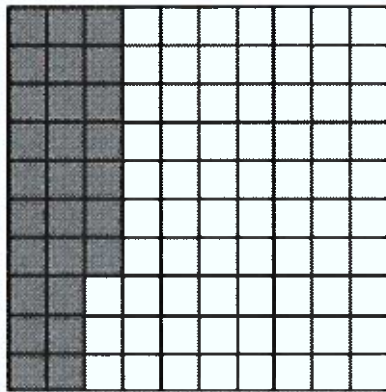
C. $\frac{1}{2}$

D. $\frac{3}{4}$

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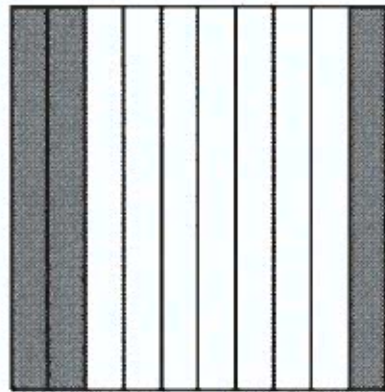
6.2b

1. Circle the inequality symbol that makes each pair of pictorial representations true.



|

>
=
<



>
=
<



2. Put the following numbers in ascending order.

$$1\frac{3}{5}$$

$$1.35$$

$$\frac{9}{5}$$

$$13.5\%$$

3. Put the following numbers in order from greatest to least.

Greatest

Least

$\frac{1}{3}$	0.13
13.3%	3

4. Circle two numbers that make the inequality statement true.

$$0.25 < \underline{\hspace{1cm}} < \frac{3}{4}$$

75%

$\frac{2}{3}$

0.225

$\frac{1}{5}$

2.5%

$0.\overline{6}$

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5. At soccer practice, Keith ran $\frac{5}{8}$ of a mile, Jake ran $\frac{4}{9}$ of a mile, and Julian ran $\frac{1}{2}$ of a mile.

Put these distances in descending order.

A. $\frac{4}{9}, \frac{1}{2}, \frac{5}{8}$

B. $\frac{1}{2}, \frac{4}{9}, \frac{5}{8}$

C. $\frac{1}{2}, \frac{5}{8}, \frac{4}{9}$

D. $\frac{5}{8}, \frac{1}{2}, \frac{4}{9}$

6. Which number goes in the blank space to make the inequality statement true?

$$\frac{5}{6} > \frac{\quad}{12}$$

- A. 9
B. 10
C. 11
D. 12

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7. The table shows changes in gasoline prices per gallon over one year.

Gasoline Prices	
Month	Change in cost per gallon
January	2.075
April	$\frac{103}{50}$
August	208.3%
December	$2\frac{3}{8}$

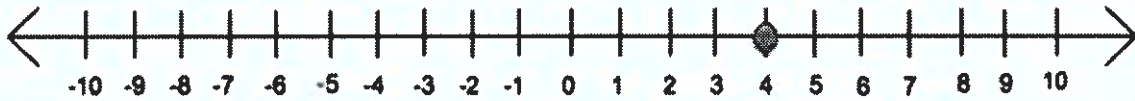
Which statement about these prices is true?

- A. January > August
- B. April > January
- C. December < January
- D. January < December

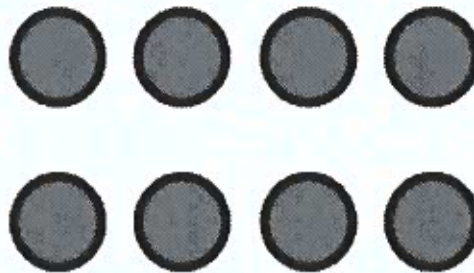
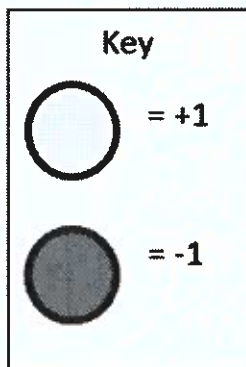
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6.3a

1. If you move the blue point ten units to the left, what number will it land on? _____



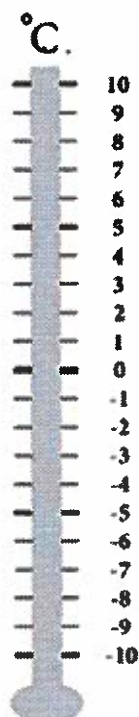
2. Use the key to answer the question below.



What integer is represented in the illustration above? _____

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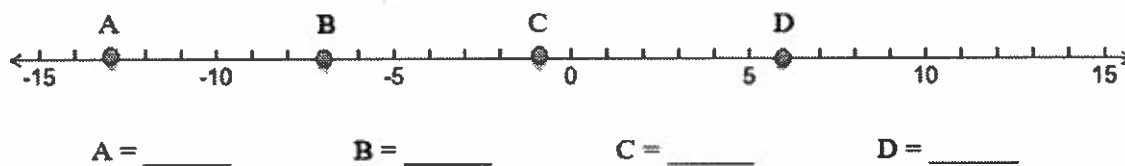
3. Illustrate where six degrees below zero is located on the thermometer below.



4. Shade all of the boxes that contain an integer.

$ -8 $	$\sqrt{25}$	$-\frac{3}{4}$
1.7	0	2^3

5. Identify each integer represented on the number line below.



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6. Write the integer represented by each situation below.

A loss of 5 yards on the football field _____

A withdrawal of sixty dollars from the ATM _____

A golfer ends up with a score 9 strokes over par _____

Water rises 35 feet above sea level _____

A mom loses 12 pounds after childbirth _____

A deposit of \$100 at the bank _____

A temperature eleven degrees below zero _____

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6.3b

1. Use the number line to put the following integers in ascending order.



-40	20	0	-156	-13	6

2. Circle all of the integers on the number line that satisfy the inequality below.

$$-3 \leq x \leq 5$$



3. Identify all of the following statements that are true.

$10 \geq 9$	$1 < -9$	$6 \leq 6$	$-4 \geq -3$
$-11 < -7$	$-2 \geq -2$	$0 > -1$	$-5 \geq -7$

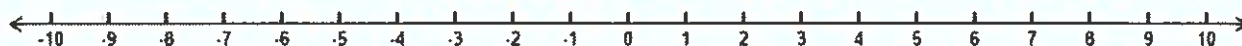
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4. Which statement is true when comparing -9 and -4 ?
- A. $-9 < -4$, because -9 lies to the right of -4 on the number line
 - B. $-9 > -4$, because -9 lies to the right of -4 on the number line
 - C. $-9 < -4$, because -9 lies to the left of -4 on the number line
 - D. $-9 > -4$, because -9 lies to the left of -4 on the number line
5. Which set of integers is listed in descending order.
- A. $-10, -7, 2, 5, 13$
 - B. $13, 5, 2, -7, -10$
 - C. $2, 5, -7, -10, 13$
 - D. $13, -10, -7, 5, 2$

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6.3c

1. Represent $|4|$ and $|-4|$ on the number line below.



2. What is the absolute value of zero? _____

Why? _____

3. Identify the two true statements below.

$$|6| = -6$$

$$|-8| = 8$$

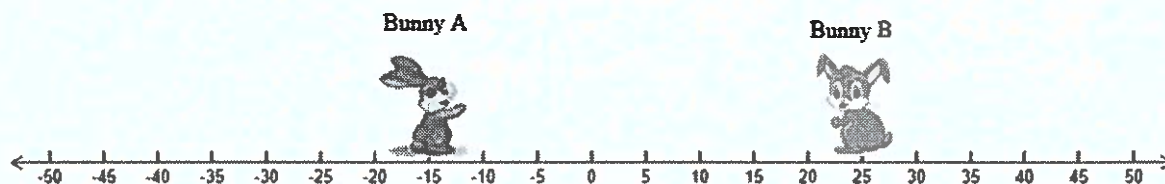
$$-4 = |4|$$

$$|-10| = -10$$

$$|9| = -9$$

$$|52| = 52$$

4. Bunny A and Bunny B are hopping on the number line below. What point should Bunny B hop to in order to have the same absolute value as Bunny A?



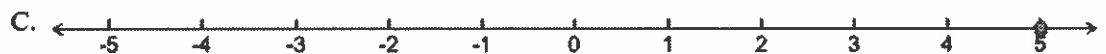
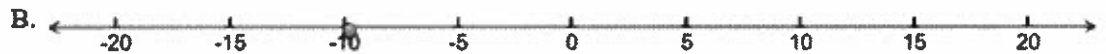
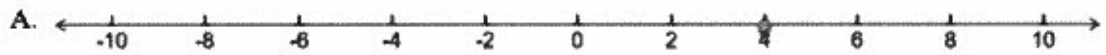
Bunny B should hop to point _____.

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5. Absolute value is –

- A. the distance from zero.
- B. shown with the symbols $| |$.
- C. never a negative value
- D. all of the above.

6. Which point on the number lines below represents the greatest absolute value?



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6.4

1. Use your knowledge of perfect squares to complete the table below.

Square Root	1	3		11		20
Perfect Square	1	9	49		196	

2. Identify all of the answer choices that are equivalent to 6^4 .

$$6 \times 6 \times 6 \times 6$$

$$4^6$$

$$6 \times 4$$

$$1,296$$

$$24 \times 4$$

$$24$$

$$36 \times 36$$

$$6 \times 6 \times 6 \times 6 \times 6$$

$$216 \times 6$$

$$7,776$$

3. What is the value of 10^6 ?

$$10^1 = 10$$

$$10^2 = 100$$

$$10^3 = 1,000$$

$$10^4 = 10,000$$

- A. 1,000
- B. 100,000
- C. 1,000,000
- D. 10,000,000

4. Which best describes the numbers in the pattern below?

100, 121, 144, 169, ...

- A. square roots
- B. perfect squares
- C. scientific notation
- D. exponential notation

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5. Max placed the numeral 10,000 in the place value chart.

Ten Thousands	Thousands	Hundreds	Tens	Ones
1	0	0	0	0

What is 10,000 written in powers of 10?

- A. 10^2
 - B. 10^3
 - C. 10^4
 - D. 10^5
6. Based on the pattern show below, what is the value of 4^5 ?

$$4^1 = 4$$

$$4^2 = 16$$

$$4^3 = 64$$

- A. 20
 - B. 68
 - C. 256
 - D. 1,024
7. A pattern of increasing perfect squares is shown.

9, 16, 25, 36, 49, 64, ...

What number comes next in this pattern?

- A. 100
- B. 81
- C. 79
- D. 65

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8. How should 10^6 be written in a place value chart?

A.

Thousands	Hundreds	Tens	Ones
1	0	0	0

B.

Ten-thousands	Thousands	Hundreds	Tens	Ones
1	0	0	0	0

C.

Hundred-thousands	Ten-thousands	Thousands	Hundreds	Tens	Ones
1	0	0	0	0	0

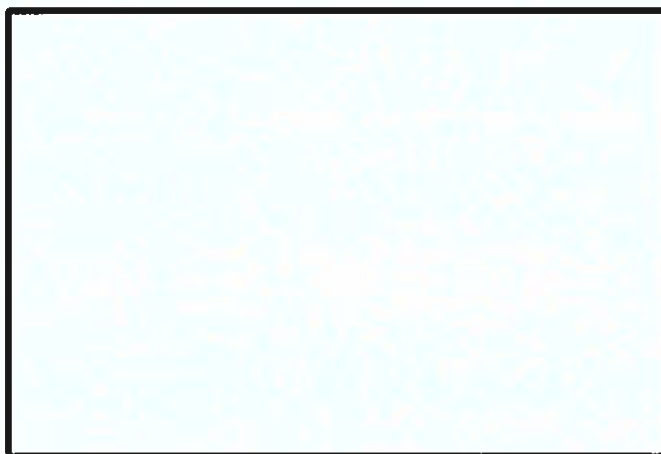
D.

Millions	Hundred-thousands	Ten-thousands	Thousands	Hundreds	Tens	Ones
1	0	0	0	0	0	0

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6.5a

1. Use the rectangle below to model $\frac{3}{5} \bullet \frac{2}{3}$?



2. Write an expression that is represented by this fraction multiplication model.



3. What is the product of $3\frac{1}{2}$ and $\frac{4}{5}$?

4. Evaluate $2\frac{2}{3} \div \frac{1}{2}$.

5. In which fraction model does the shaded part represent $\frac{1}{2} \div 5$

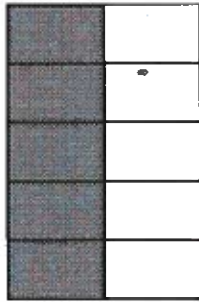
A.



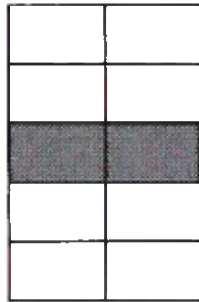
B.



C.



D.



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6.5b

1. The height of a car is $46\frac{1}{4}$ inches. The toy model of that car is $2\frac{1}{2}$ inches tall. How many times greater is the height of the car than the height of its model? Express this quotient as a mixed number.
2. Kelsey filled 12 bags with either a red marble, yellow marble, or blue marble. One sixth of the bags included a red marble. Identify each scenario that could describe the remaining gift bags.

$\frac{2}{3}$ of the total bags contain yellow marbles and 2 contain blue marbles.
$\frac{5}{12}$ of the total bags contain yellow marbles and $\frac{1}{3}$ contain blue marbles.
$\frac{1}{3}$ of the total bags contain yellow marbles and $\frac{1}{2}$ contain blue marbles.
$\frac{1}{2}$ of the total bags contain yellow marbles and 6 contain blue marbles.

3. Dean bought $4\frac{1}{2}$ gallons of gasoline to use in his lawnmower. If he uses $\frac{3}{4}$ gallon each time that he mows the yard, how many times can he mow the yard before he runs out of gasoline.
 - A. $3\frac{3}{4}$
 - B. $4\frac{3}{8}$
 - C. 5
 - D. 6

4. Each of Mrs. Malone's 16 students ate $\frac{3}{8}$ of a pizza. How many pizzas did they eat,

altogether?

- A. 6
- B. 8
- C. 10
- D. 12

5. On Monday Mr. Conner rode his bike for $\frac{2}{3}$ of an hour. On Tuesday he rode $\frac{5}{6}$ of an hour.

On Wednesday he rode $\frac{7}{12}$ of an hour. His goal had been to ride for three hours

altogether. How much time was he short of his goal?

- A. $\frac{5}{6}$ hour
- B. $\frac{11}{12}$ hour
- C. $\frac{25}{12}$ hour
- D. $2\frac{1}{12}$ hour

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6.5c

1. Each week Terrell gets paid \$20 for cutting the grass. Each week he spends \$7.25 on a movie, \$2.61 on candy, and \$3.67 on a soda...
 - a. What are his expenses each week?
 - b. How much money will he have left over, each week?
 - c. If Terrell spends his money the same way each week for four weeks, and saves his leftover change, how much money will he have saved after four weeks?
2. Each week, members of the cross country team are required to run 20 miles. The runners recorded their training distances, below. Which runners ran exactly 20 miles?

Travis 5.4mi + 8.7mi + 5.9mi	John 4.8mi + 10.7mi + 5.4mi	Antwon 6.6mi + 6.6mi + 6.6mi
Sarah 9.2mi + 5.6mi + 4.7mi	Maizie 6.1mi + 9.3mi + 4.6mi	Gabi 5.4mi + 10.7mi + 6.6mi

3. Three brothers go to a restaurant for dinner. They ordered one large pizza for \$12.95, to share. One brother orders a soda for \$1.95, and one orders hot-wings for \$9.46. If they share the cost of the meal equally, how much will each brother have to pay?
 - A. \$7.47
 - B. \$8.12
 - C. \$12.95
 - D. \$24.36
4. At the beginning of the school year, Tyrone bought 12 notebooks for a total price of \$19.56. Jaime went to the same store and bought 5 notebooks. How much did Jaime Spend
 - A. \$8.15
 - B. \$8.05
 - C. \$9.21
 - D. \$9.42

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6.6a – NO CALCULATOR

1. Ricardo is solving a math problem. He knows the model (see below) but does not know the numbers. Find integers that would solve this problem

$$\frac{\square - \square}{\square \cdot \square} = -1$$

2. Identify each true statement



$(-9) - 5 = -4$	$(-12) + 13 = 1$	$4 \bullet (-7) = -28$	$4 \bullet (-3) = 12$
$(-27) \div (-3) = 9$	$10 \div (-5) = -2$	$10 - (-4) = -14$	$(-5) \bullet (-6) = 30$

3. Which of the following equations is NOT true

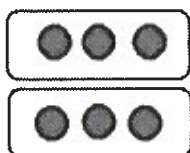
- A. $-2 - (-6) = -4$
- B. $-6 - (-7) = 1$
- C. $2 - (-6) = 8$
- D. $6 - 7 = -1$

4. If p is a negative integer, which of these expressions represents the largest number

- A. $5p$
- B. $5 \div p$
- C. $5 - p$
- D. $5 + p$

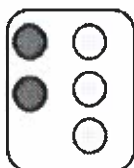
Key		$= 1$
		$= -1$

5. Which equation does this model represent?



- a. $3 (-2) = -6$
- b. $2 (-3) = -6$
- c. $-2 (-3) = -6$
- d. $-2 (3) = 6$

6. Which equation does this model represent?



- a. $-2 + 3 = 1$
- b. $-2 + -3 = -5$
- c. $-3 + 2 = -1$
- d. $3 + -5 = -2$

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6.6b

- 1. Students in Mr. Manley's class lose three points on their grade, every time that they forget to turn in their homework.**
 - a. What integer represents the change in Erika's grade if she forgets her homework 5 times?**
 - b. What would Erika's grade end up to be if it had started at 82?**
 - c. If Subashni's grade ended up being 59, what would it have been if she had not missed seven homework assignments?**

- 2. Emily enters an elevator on the 3rd floor and rides it up six floors. She then rides the elevator down three floors, and then back up two floors. When she finally exits the elevator, on what floor is she?**

- 3. If the temperature during the day is 6° and the temperature drops 15° after sunset, what is the temperature at night?**
 - A. -9°**
 - B. -6°**
 - C. 9°**
 - D. 21°**

- 4. Linda climbed a mountain to a height of 2,325 meters above sea level. Janice hiked down a canyon that is 37 meters below sea level. How much higher was Linda than Janice?**
 - A. -2,288 meters**
 - B. -2,288 meters**
 - C. 2,288 meters**
 - D. 2,362 meters**

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- 5. Francie had \$250 in her savings account. For six months in a row, she withdrew \$30 each time. How much money did she have in her account at the end?**
- A. \$70**
 - B. \$110**
 - C. \$180**
 - D. \$430**

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6.6c – NO CALCULATOR

1. The work of three students in Mrs. Wray's 6th grade class is shown below:

Abby's work	Ben's work	Charice's work
$2 - 12 \div 6 \bullet 2$ $2 - 2 \bullet 2$ $0 \bullet 2$ 0	$2 - 12 \div 6 \bullet 2$ $2 - 2 \bullet 2$ $2 - 4$ -2	$2 - 12 \div 6 \bullet 2$ $2 - 12 \div 12$ $2 - 1$ 1

- Which student calculated the problem correctly?
- What was their solution
- Identify the mistakes made by the other two students

2. Which of the following has a value of -2

$\frac{5+3}{4}$	$\frac{7-11}{2}$	$-4(9-3) \div 12$
$\frac{2^3}{-4}$	$ 16-18 -4$	$5(9-6) \div 15$

3. Using the order of operations, what is the second operation that should be formed in the problem below –

$$4^2 + (10 - 7) \bullet 3$$

- A. 4^2
- B. $(10-7)$
- C. $3 \bullet 3$
- D. $16 - 9$

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4. Evaluate $\frac{18}{9} + 2(3 + 4)$

A. 12

B. 16

C. 17

D. 18

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6.12a

1. Tyrique is mixing yellow and blue paint using a ratio of 2 to 3. Create a table of values to represent this proportional relationship.

Amount of yellow paint	Amount of blue paint

2. Stacy went to an arcade that requires 6 tokens to play 2 games. If a proportional relationship exists between the number of games and the number of tokens, create a table of values to represent this relationship.

Number of games	Number of tokens

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3. Which of the following tables represents a proportional relationship between x and y with a ratio of 3:4?

A.

x	y
6	8
7	9
8	10

B.

x	y
6	24
7	28
8	32

C.

x	y
6	8
7.5	9.5
9	11

D.

x	y
6	8
7.5	10
9	12

4. Sophia makes \$12 an hour babysitting. Which of the following tables represents the proportional relationship between the hours spent babysitting, x , and the money she earns, y ?

A.

x	y
2	12
3	24
4	36

B.

x	y
2	24
3	36
4	48

C.

x	y
12	2
24	3
36	4

D.

x	y
24	2
36	3
48	4

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6.12b

1. Mrs. Andrew made coffee using the ratio of 3 tablespoons of ground coffee to 6 ounces of water. Given that the ratio of number of tablespoons, x to the amount of water, y , represents a proportional relationship. Determine the missing values to complete the table.

Ground Coffee(x) (tablespoons)		9		16
Water (y) (ounces)	4		24	

2. Joey Chestnut holds the record for eating 72 hotdogs in 10 minutes. The table below represents a proportional relationship of number of minutes, x , to the number of hotdogs, y . Determine the unit rate for the number of hotdogs eaten per minute.

Minutes (x)	Hotdogs (y)
4	28.8
8	57.6
10	72

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3. Micah is going to Putt- Putt with her friends. The table represents the relationship between the number of games to the cost. Determine the missing value.

Number of Games	Cost
2	16
3	24
5	
7	56

- A. 32
- B. 48
- C. 40
- D. 26

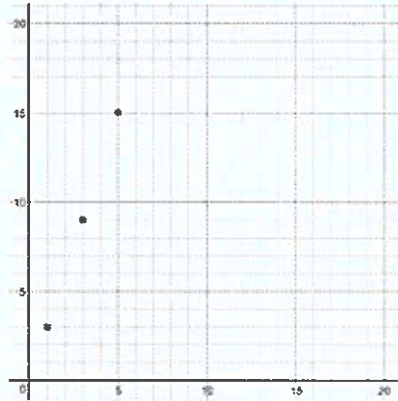
4. Jennifer earned \$54 when she sold 9 cheesecakes. If this represents a proportional relationship, what is the unit rate of money earned to cheesecakes sold?

- A. 1 to 6
- B. 1 to 9
- C. 9 to 1
- D. 6 to 1

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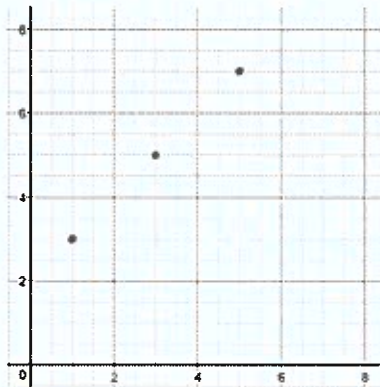
6.12c

1. Given:



Determine whether a proportional relationship exists, and explain why.

2. Given:



Determine whether a proportional relationship exists, and explain why.

3. Sarah is shopping for school supplies and sees signs that have the following descriptions:
- Erasers 2 for \$1 or 10 for \$4
 - Pencils \$0.25 each

Does the number of erasers purchased and the cost of the erasers represent a proportional relationship? Explain why or why not.

Does the number of pencils purchased and the cost of the pencils represent a proportional relationship? Explain why or why not.

4. Jose is mixing paint for an art project. He uses $\frac{1}{2}$ cup of yellow paint for every cup of blue paint. Does Jose's paint mix represent a proportional relationship? Explain.

5. Which set of ordered pairs represents a proportional relationship?

- A. (3,15), (5,17), (9,21)
- B. (3,15), (5,25), (9,45)
- C. (3,15), (5,23), (9,39)
- D. (3,15), (5,27), (9,51)

6. Which table represents a proportional relationship?

A.

x	y
1	5
2	6
3	7

B.

x	y
1	3
2	6
3	9

C.

x	y
0	3
3	6
6	9

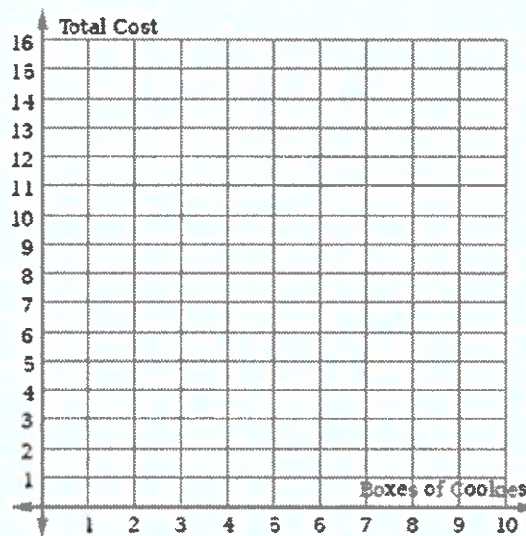
D.

x	y
0	5
3	7
6	9

2016 Mathematics Standards of Learning

6.12d

1. Create a situation that represents a proportional relationship. Create a table of values and a graph to represent this relationship.
2. Suzanne is selling 4 boxes of cookies for \$10. A proportional relationship exists between the number of boxes of cookies, x , and the total cost, y . Create a graph with at least 4 points that represents the same proportional relationship.



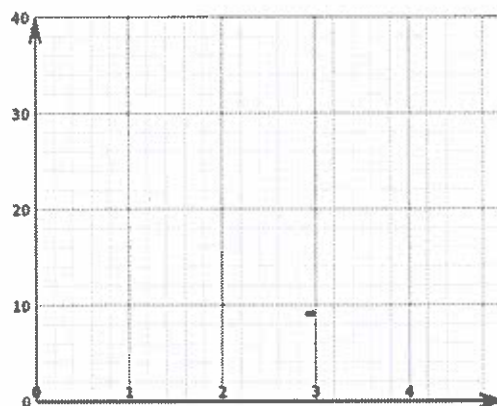
2016 Mathematics Standards of Learning

3. The table represents the relationship between the dollars earned selling T-shirts for each day that Alejandro worked.

Shirts Sold	Dollars Earned
6	75
9	112.50
11	137.50

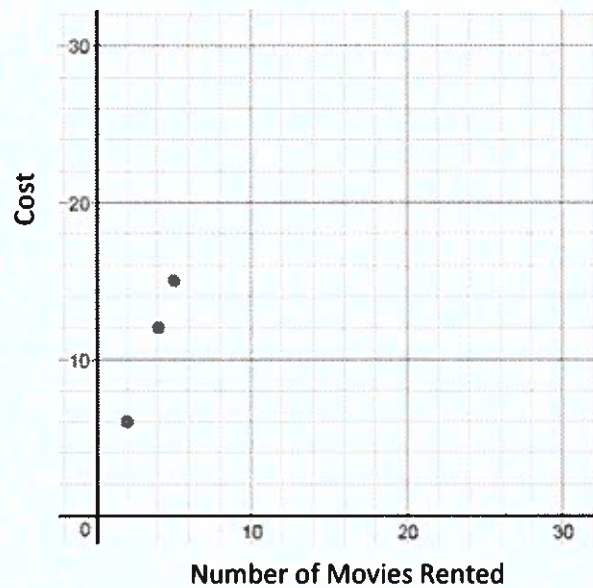
Determine and describe the unit rate for the price that he used for the cost of each shirt.

On the coordinate graph, plot points that would represent the relationship between the dollars earned and the sale of 1, 2, and 3 shirts.



2016 Mathematics Standards of Learning

4. The graph below shows the relationship between the number of movies rented to the total cost.



Which table below represents the same proportional relationship?

A.

Movies Rented	Cost
1	3
3	5
6	8

B.

Movies Rented	Cost
1	3
10	13
12	24

C.

C

Movies Rented	Cost
7	21
10	30
13	39

D.

Movies Rented	Cost
7	10
3	6
6	9





2016 Mathematics Standards of Learning

6.13

- Using the given key and equation mat, represent and solve the following linear equation algebraically. Then, confirm your solution.

$$d - 4 = -12$$

Key:

	$= 1$		$= -1$
	$= d$		$= -d$

Equation Mat

=

- Explain how to solve the algebraic equation and justify your answer.

$$p + 8 = 12$$

2016 Mathematics Standards of Learning

3. Select the two methods that can be used to solve the algebraic equation.

$$-2x = 12$$

- Add -2 to each side.
- Multiply each side by -2
- Divide each side by -2.
- Add $-\frac{1}{2}$ to each side.
- Multiply each side by $-\frac{1}{2}$
- Divide each side by $-\frac{1}{2}$

4. Represent and solve the following situation as an algebraic equation.

Richmond City Schools provides 3 buses for a school field trip. If 72 students are going on the school field trip, how many students will be on each bus? Assume the students (s) are equally divided on each bus.

Algebraic Equation: _____

There will be _____ students on each bus.

5. In the following expression, drag and drop the correct algebraic name:

$-3m$

Variable

Coefficient

6. Identify three verbal statements that represent the expression below.

$$4n - 16$$

- The product of four and a number decreased by 16
- The quotient of four and a number minus 16
- Four times a number less than 16
- Sixteen less than four times a number
- The difference between four times a number and 16
- Four more than a number decreased by 16

7. How many terms are in the following expression?

$$7x^2 + 5x - 3$$

2016 Mathematics Standards of Learning

8. Which method can be used to solve the algebraic equation below?

$$z - 6 = 13$$

- A. Subtract 6 from both sides of the equation
- B. Add 6 to both sides of the equation
- C. Subtract 13 from both sides of the equation
- D. Add 13 to both sides of the equation

9. How would you solve the equation below?

$$\frac{1}{3}x = -6$$

- A. Multiply both sides of the equation by $\frac{1}{3}$
- B. Multiply both sides of the equation by 3
- C. Divide both sides of the equation by 3
- D. Divide both sides of the equation by -6

10. Which solution will make the linear equation statement true?

$$13.75 = -2.5z$$

- A. $z = 5.5$
- B. $z = -16.25$
- C. $z = 16.25$
- D. $z = -5.5$

6.14

- Joey is a member of the football team. He works out at least 4 hours each week to stay in shape. Write an inequality to represent this situation and graph the solution.

Algebraic Inequality: _____

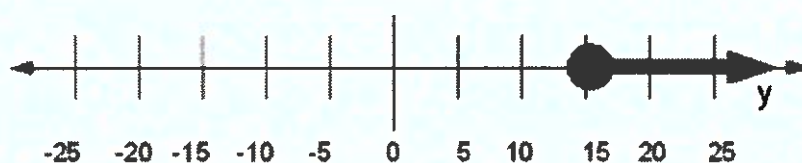


- Solve the one-step linear inequality.

$$3 + x < 5$$

- $x < 8$
- $x < 2$
- $x > 8$
- $x > 2$

- Identify two inequality statements that represent the graph below.



$n < 15$	$n > 15$	$n \leq 15$	$n \geq 15$
$15 < n$	$15 > n$	$15 \leq n$	$15 \geq n$

2016 Mathematics Standards of Learning

4. Select all of the numerical values that would make the inequality statement true.

$$a - 8 < -12$$

4	-3	-7
-5	0	-4

5. What is the solution to $10 \leq p - 4$?

- A. $6 \geq p$
- B. $14 \geq p$
- C. $14 \leq p$
- D. $6 \leq p$

6. Which number line represents all solutions to the inequality $x \leq 3$?



6.1

- 1. What ratio describes the ratio of the value of a dime to the value of a quarter?**

A 1:4
B 1:10
C 2:5
D 1:25

6.1

- 2. What is the ratio of red roses to white roses?**

Red Roses	White Roses
4	2
12	6
16	8
20	10

A 1:4
B 2:1
C 8:16
D 4:2

6.1

- 3. Jack has 15 green triangles and 22 blue triangles. What ratio compares the number of green triangles to the total number of triangles?**

A 15 to 22
B 22 to 15
C 15 to 37
D 22 to 37

6.1

4. The ratio $\frac{5}{3}$ represents the relationship between two sets. Which description represents this relationship?

- A For every 5 points that Jack earns, Michael earns 8 points.
- B For every 10 points that Jack earns, Michael earns 5 points.
- C For every 3 points that Jack earns, Michael earns 5 points.
- D For every 15 points that Jack earns, Michael earns 9 points.

6.2a

5. Which of the following statements is false?

- A $0.39 = \frac{39}{100} = 39\%$
- B $0.534 = \frac{534}{1000} = 53.4\%$
- C $0.9 = \frac{90}{100} = 90\%$
- D $6.07 = \frac{607}{1000} = 60.7\%$

6.2a

- 6.** A seventh-grade class conducted a survey to find out what kinds of pets their classmates owned. They discovered that 60% of the pets owned by the students were dogs. What fractional part of the pets were not dogs?

A $\frac{2}{5}$

B $\frac{2}{3}$

C $\frac{3}{10}$

D $\frac{3}{5}$

6.2b

- 7.** Which of the following statements is true?

A $90.03 = 90.3$

B $90.03 < 90.03$

C $90.03 < 90.30$

D $90.03 > 90.3$

6.2b

- 8.** Compare: $\frac{2}{6}$? $\frac{2}{3}$

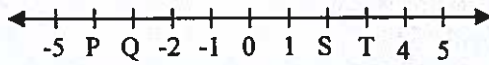
A $<$

B $>$

C $=$

6.3a

9. Which point represents the integer of -3?



- A Point P
- B Point Q
- C Point S
- D Point T

6.3b

10. Which of the following statements is correct?

- A $-11 > -8 > -7 > 0 > 1$
- B $-11 < -8 < -7 < 0 < 1$
- C $0 < 1 < -7 < -8 < -11$
- D $3 > -7 > -8 > -11 > 0$

6.3b

11. Which of the following integers does NOT lie between -30 and 30?



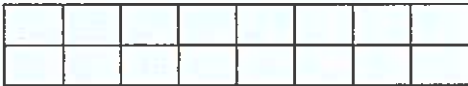
- A -35
- B -12
- C -7
- D 20

6.3c

12. What number has the same absolute value as 5?

- A -5
- B $-\frac{1}{5}$
- C 0
- D 5.5

6.4

13. Which is a model of 4^2 ?**A****B****C****D**

6.4

14. What number belongs in this table?

10^5	?
10^4	10,000
10^3	1,000
10^2	100
10^1	10

- A** 50,000
B 100,000
C 110,000
D 1,000,000

6.4

15. What number belongs in the chart?

3^1	3
3^2	9
3^3	27
3^4	81
3^5	?

- A** 162
- B** 221
- C** 243
- D** 281

6.4

16. What is the base in the expression N^b ?

- A** N
- B** both N and b
- C** b
- D** neither N nor b

6.5a

17. Multiply: $2\overline{8}^5 \times 3\overline{5}^2$

- A** $6\overline{4}^1$
- B** $6\overline{40}^{37}$
- C** $8\overline{4}^1$
- D** $8\overline{40}^{37}$

6.5b

18. You have a 12-foot board and need to cut the board so that it is $9\frac{3}{8}$ feet long. How much do you have to cut off?

A $\frac{3}{8}$ ft.

B $2\frac{3}{8}$ ft.

C $2\frac{5}{8}$ ft.

D $3\frac{5}{8}$ ft.

6.5b

19. How many acres of land does each person have if $19\frac{1}{4}$ acres are divided among 5 people?

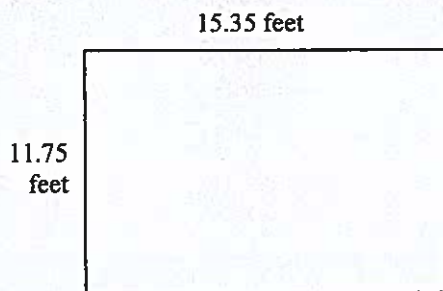
A $3\frac{5}{24}$ acres

B $3\frac{4}{5}$ acres

C $3\frac{17}{20}$ acres

D $8\frac{5}{9}$ acres

6.5c

20. Michael's garden is shown below.

If Michael buys 60 feet of fencing to go around this garden, how much will he have left over?

- A** 5.6 feet
- B** 5.7 feet
- C** 5.8 feet
- D** 5.9 feet

6.6a

21. What is the value of $300 \div (-25)$?

- A** -15
- B** -12
- C** 12
- D** 15

6.6b

22. The record low temperature of -23°F for Texas occurred on February 8, 1933. The record high temperature of 120°F occurred on August 12, 1936. What is the difference between these two temperatures?

- A** 43°F
- B** 97°F
- C** 120°F
- D** 143°F

6.6c

23. What is $(2^3 - 3) + 5 \times 2$?

- A** 13
- B** 15
- C** 16
- D** 20

6.6c

24. Solve: $\frac{90 - (4 + 2 \times 3)}{10}$

- A** 8
- B** 9.2
- C** 88.2
- D** 89

6.7a

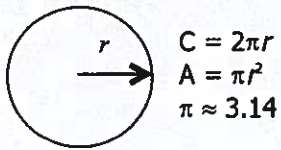
25. Jack measured the circumference and diameter of three circles.

	Circumference	Diameter
Circle #1	66 inches	21 inches
Circle #2	11 inches	3.5 inches
Circle #3	88 inches	28 inches

What should be true about the ratio of the circumference to the diameter of each circle?

- A** This ratio is approximately $\frac{22}{3}$.
- B** This ratio is approximately $\frac{7}{22}$.
- C** This ratio is approximately $\frac{3}{22}$.
- D** This ratio is approximately $\frac{22}{7}$.

Use these formulas to answer the following question.

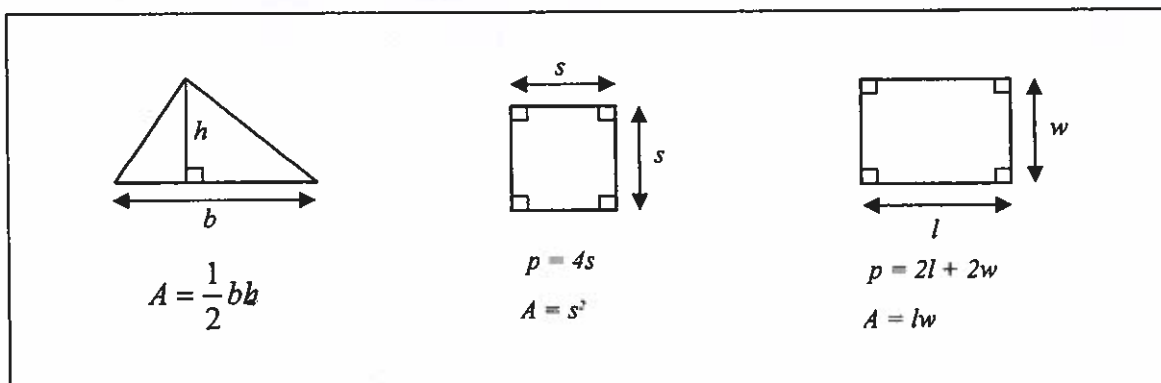


6.7b

26. A model train set has a circular track that has a radius of 75 cm. What is the area on the inside of the track?

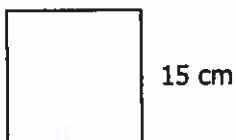
- A 235.5 cm²
- B 471 cm²
- C 5,625 cm²
- D 17,662.5 cm²

Use these formulas to answer the following question.



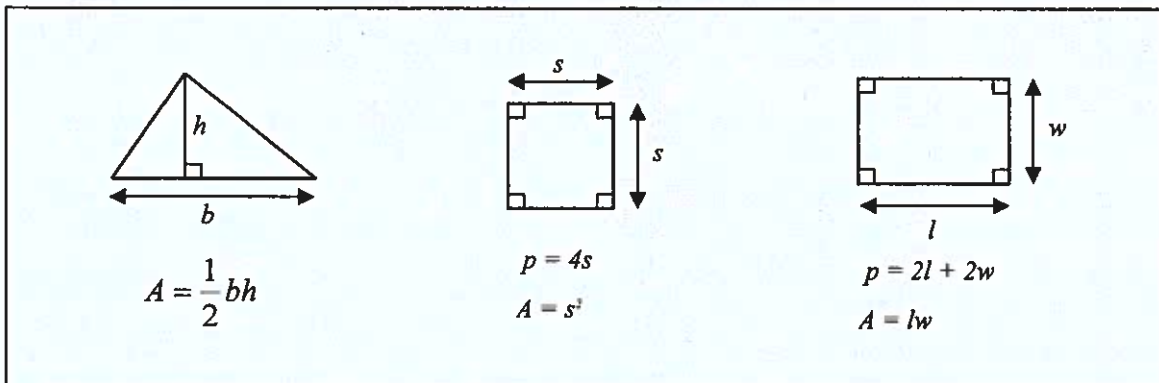
6.7c

27. What is the area of the square?



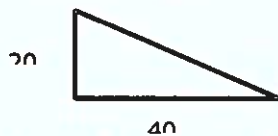
- A 30 cm²
- B 60 cm²
- C 150 cm²
- D 225 cm²

Use these formulas to answer the following question.



6.7c

28. What is the area of the right triangle?



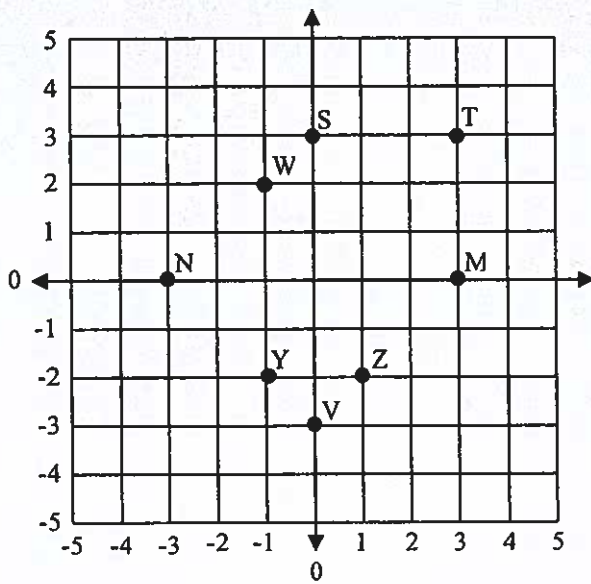
- A 40 cm^2
- B 80 cm^2
- C 400 cm^2
- D 800 cm^2

6.8a

29. Which quadrant has a negative x -coordinate and a negative y -coordinate?

- A quadrant I
- B quadrant II
- C quadrant III
- D quadrant IV

Use this graph to answer the next question.



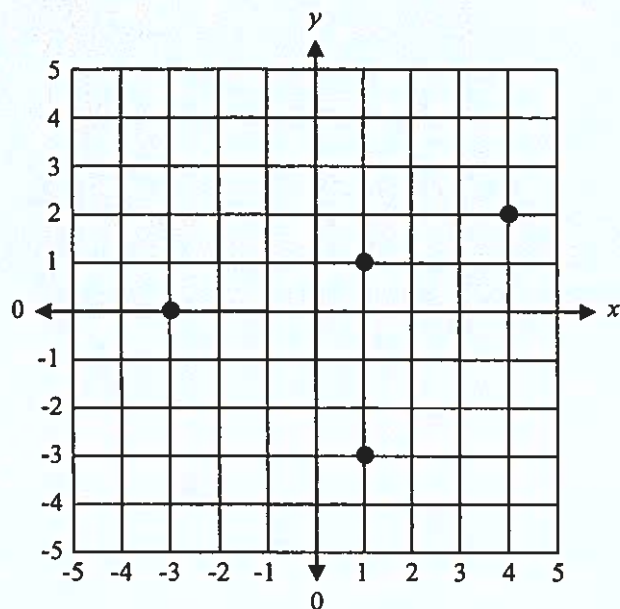
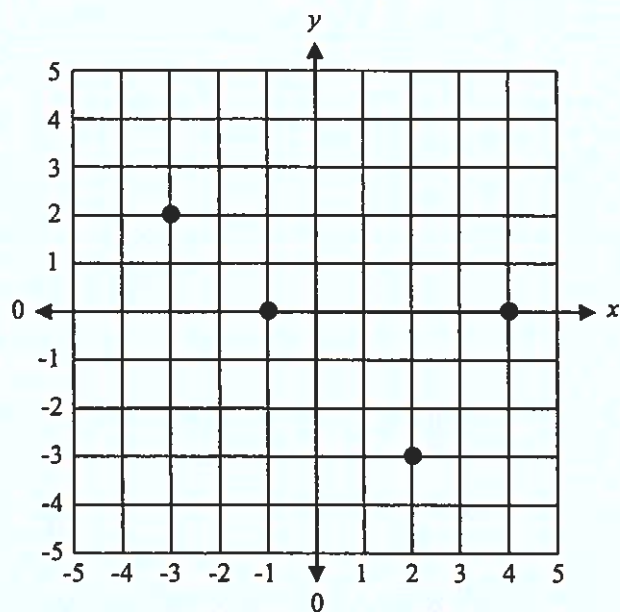
6.8a

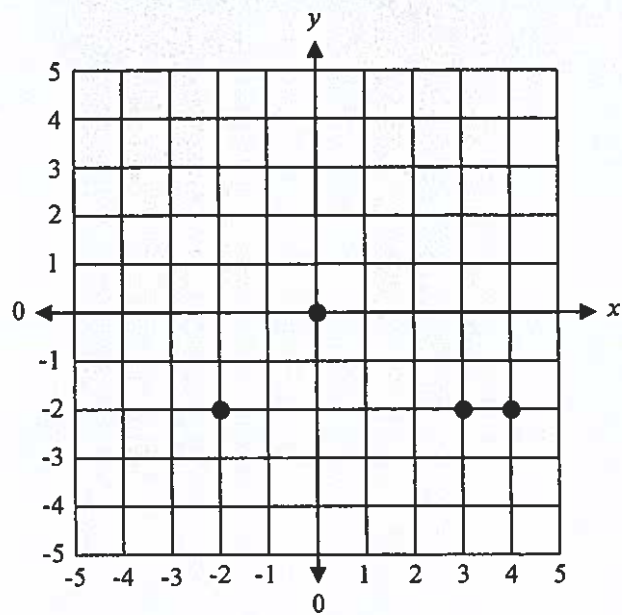
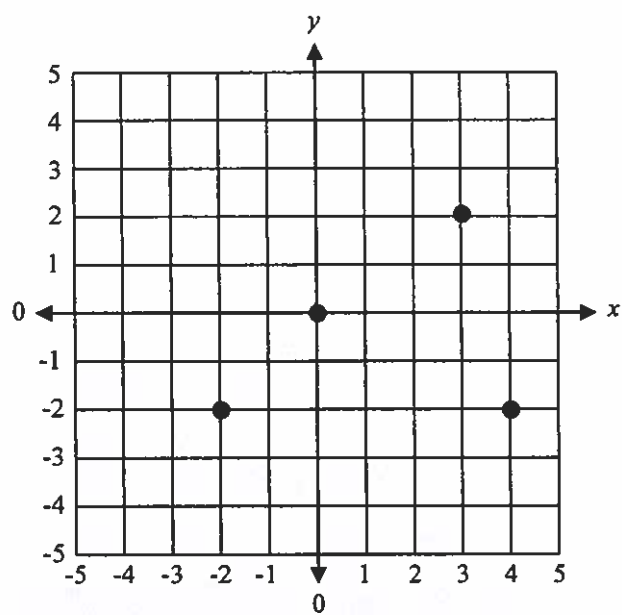
30. Which of the following points lies on the x-axis?

- A** points S and V
- B** points M and T
- C** points N and M
- D** points N and Y

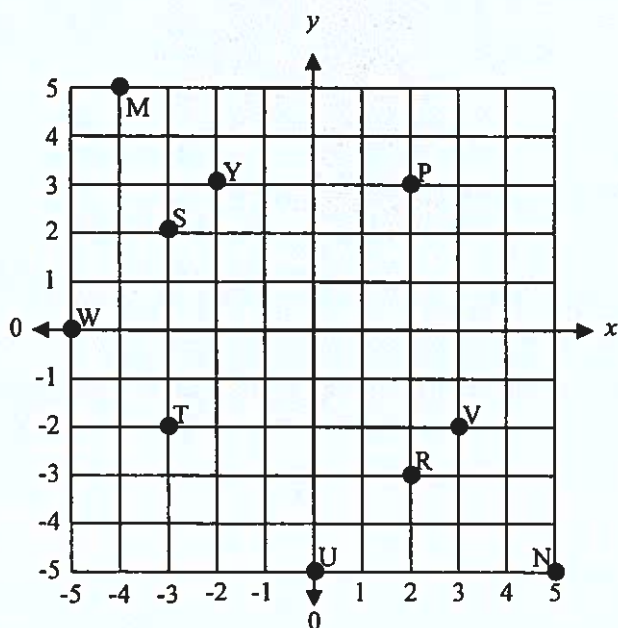
6.8b

31. Which of the following graphs contains the ordered pairs $(-2, -2)$; $(0, 0)$; $(3, 2)$; $(4, -2)$?

A**B**

C**D**

Use the coordinate plane shown below to answer the next question.

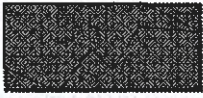
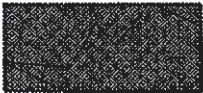


6.8b

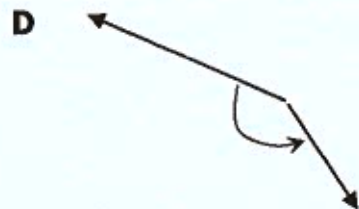
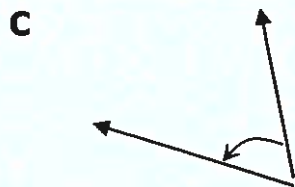
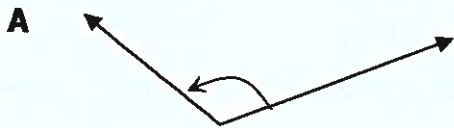
32. Which point identifies the location of $(-3, 2)$?

- A** point T
- B** point R
- C** point S
- D** point Y

6.9

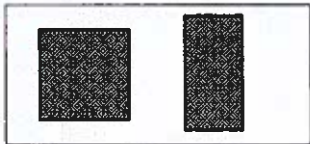
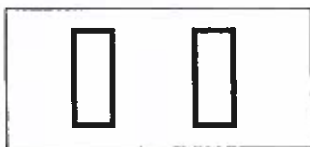
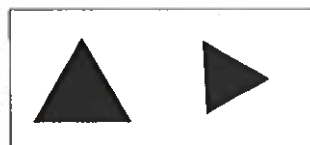
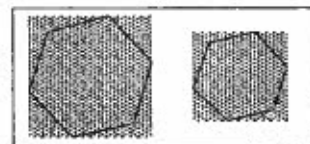
33. Look at this target figure.**Which of the following is congruent with the target figure?****A****B****C****D**

6.9

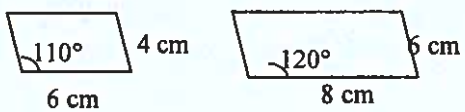
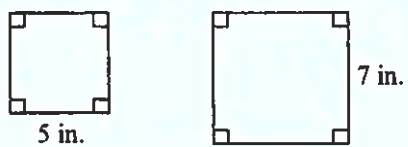
34. Look at this figure.**Which of the following is congruent with the above figure?**

6.9

35. Select the pair of figures where the two figures appear to be congruent to each other.

A**B****C****D**

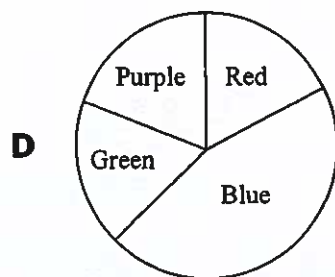
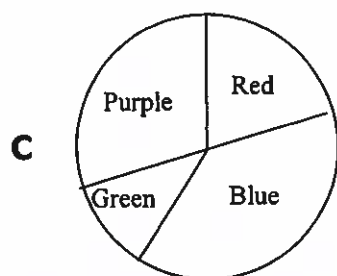
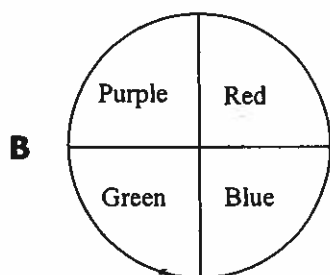
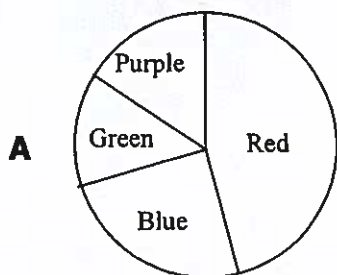
6.9

36. Which set of polygons is congruent?**A****B****C****D**

6.10a

- 37. Ben asked 20 friends and family members to name their favorite color. This chart shows the results of the survey. Which circle graph best represents this information?**

Favorite Color	Number of People
Red	4
Blue	8
Green	2
Purple	6



6.10a

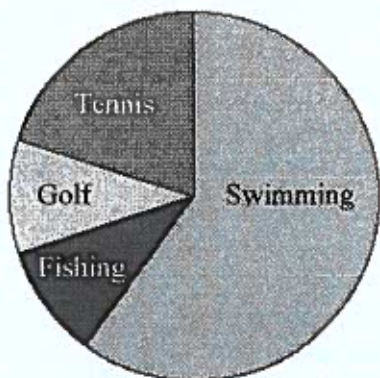
38. Two hundred summer campers were asked this question: What was your favorite activity at camp this summer? The results of this survey are shown in the table.

Favorite Camp Activities	Fractional Part of Survey Votes
Fishing	$\frac{1}{5}$
Swimming	$\frac{1}{2}$
Golf	$\frac{1}{5}$
Tennis	$\frac{1}{10}$

What circle graph best represents this information?

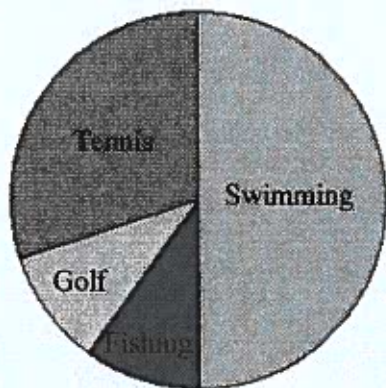
Favorite Camp Activities

A



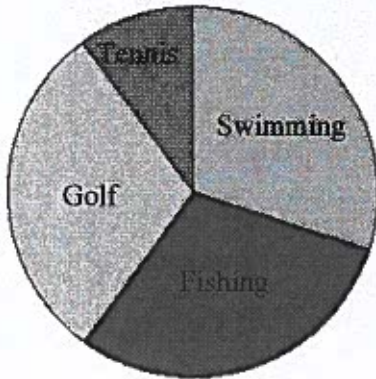
Favorite Camp Activities

B



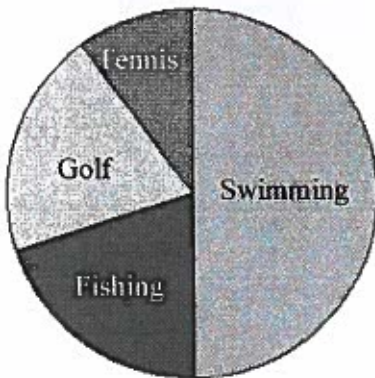
Favorite Camp Activities

C

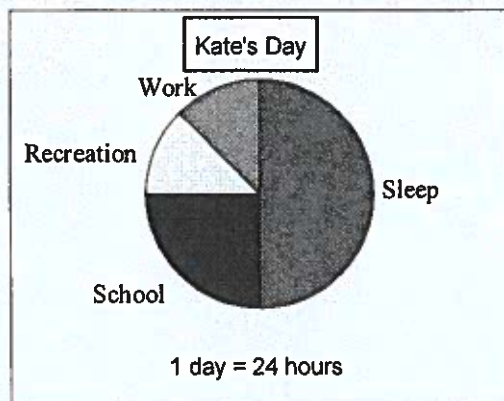


Favorite Camp Activities

D



Use the circle graph below to answer the next question.



6.10b

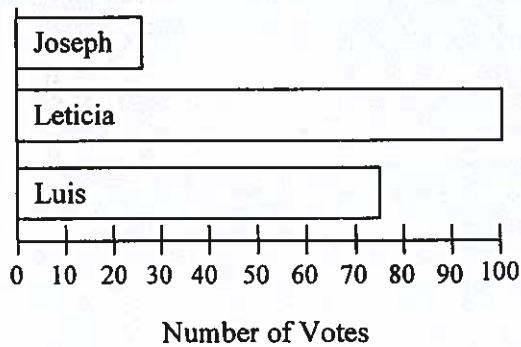
39. What did Kate spend most of her day doing?

- A** recreation
- B** working
- C** at school
- D** sleeping

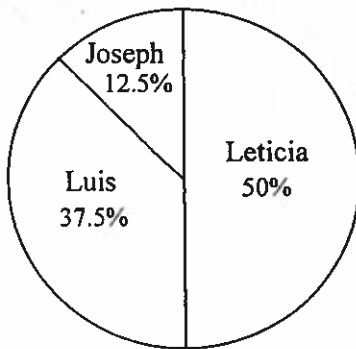
6.10c

- 40. Three students are running for class President. Two different data displays are used to show the results.**

Sixth Grade Election Results



Sixth Grade Election Results



What statement is true about these data displays?

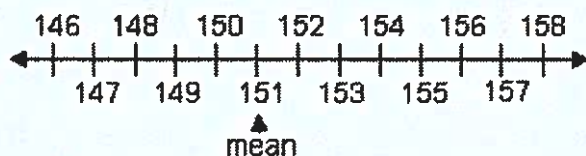
- A** Both data displays show that Luis is in third place.
- B** Leticia is the winner in the bar graph but not in the circle graph.
- C** Both graphs show that Joseph has $\frac{1}{8}$ of the total votes.
- D** Luis has one-half of the total votes.

6.11a

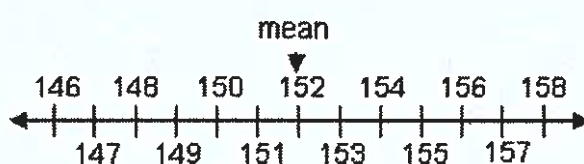
41. Which number line identifies the mean as a balance point for this set of data?

146, 147, 148, 152, 155, 158

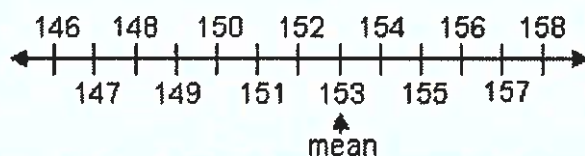
A



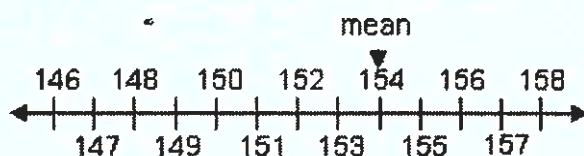
B



C



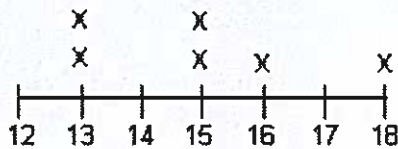
D



6.11a

- 42. Kelly collected data on how many miles she walked each week for six weeks. The line plot displays this data.**

Miles Walked by Kelly for Six Weeks



What is the balance point for this set of data?

- A** 12 miles
- B** 13 miles
- C** 14 miles
- D** 15 miles

6.11b

- 43. Which measure of center would be most useful in describing a data set that does not have very high or low numbers? For example, this set would best be described by the _____.**

13, 14, 15, 16, 18, 19, 20, 21

- A** mean
- B** median
- C** mode
- D** range

6.11b

- 44. What data point could you include in this set so that the median would be the best description for this set?**

82	83	85	85	88	89	91	93	94	96
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- A** 90
- B** 89
- C** 77
- D** 17

6.12a

45. Jason can type 35 words in 60 seconds. Which table represents a set of values that are proportional to 35 words in 60 seconds?

A

Words	7	28	42
Seconds	12	36	48

B

Words	7	14	28
Seconds	12	36	48

C

Words	7	14	21
Seconds	12	24	36

D

Words	7	21	42
Seconds	12	48	72

6.12b

46. Jack recorded some data related to miles traveled and gallons of gas used.

Miles	87	?	203
Gallons of Gas	3	5	7

What is the missing value in this table?

- A** 135
- B** 145
- C** 155
- D** 165

6.12c

47. Which table shows a proportional relationship?**A**

x	y
1	12
2	6
3	4
4	3
6	2
12	1

B

x	y
1	3
2	6
3	9
4	12
5	15

C

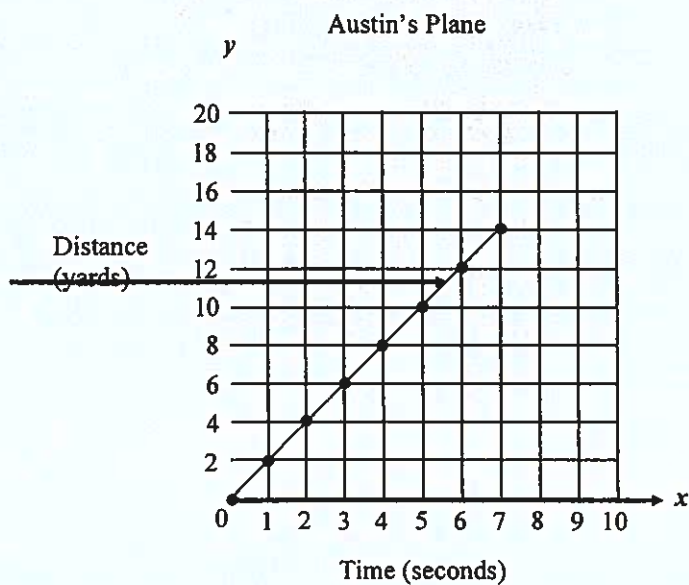
x	y
1	2
3	4
6	8
7	15
16	22

D

x	y
1	4
2	6
3	12
4	20
5	25

6.12d

48. Austin graphed how far his motorized airplane traveled. What is the unit rate shown on this graph?



- A** 2 yards per second
- B** 5 yards per second
- C** 7 yards per second
- D** 10 yards per second

6.13

49. What is the value of x ?

$$x + \square\square\square = \square\square\square\square\square\square$$

- A** $\square\square\square\square$
- B** $\square\square\square$
- C** $\square\square$
- D** \square

6.13

50. What is the value of y ?

$$\frac{y}{6} = 48$$

- A** 6
- B** 8
- C** 288
- D** 422

6.13

51. What is the coefficient of $3a$?

- A** 1
- B** 3
- C** 7
- D** 9

6.13

52. Which of the following is an example of an equation?

- A** $12 + 36 = 48$
- B** $15 - 2 > 10$
- C** $3a + 4b$
- D** $x - 12 + y$

6.14a

53. Juan has to stay inside until the temperature is greater than -2 degrees. Which inequality represents this situation?

- A** $t < -2^\circ$
- B** $t > -2^\circ$
- C** $t \leq -2^\circ$
- D** $t \geq -2^\circ$

6.14a

54. Paul needs to save at least \$150 from his next paycheck. Which inequality represents this situation?

- A** $P > 150$
- B** $P \geq 150$
- C** $P < 150$
- D** $P \leq 150$

6.14b

55. Solve the following inequality: $-\frac{1}{2}n > 7$.

- A** $n > -14$
- B** $n > 14$
- C** $n < -14$
- D** $n < 14$

6.14b

56. Which is the solution to $7 + x > 14$?

