Name _____

MATH SUMMER PACKET

2018-2019

- Students going to **7th grade** (former 6th grade student) please complete **packet A**.
- Students going to **8th grade** (former 7th grade student) please complete **packet B**.
- Students going to **Geometry** (former Algebra student) please complete **packet C**.

Dear Students ☺

Summer is a time to relax and have fun but it is also a great time to stay sharp on your math problem solving skills.

Due to the cumulative nature of mathematics, in order for you to be successful in the coming academic school year, you should be up to date on your prerequisite math skills.

Here's what to do:

- Print out the packet
- Work on it throughout the summer
- Show all of your work right on the packet

You will receive an extra credit grade for the entire packet. This will be your fist grade of the year.

Remember to bring this packet on the first week of school and give it to your math teacher.

In case you need a little extra help, visit these websites:

- http://www.classzone.com
- http://khanacademy.org
- http://www.purplemath.com
- http://www.mathdrills.com

PACKET B

Distinguish between situations that are proportional or not proportional, and use proportions to solve problems.

For 1-4, the table below shows the amount four friends paid to download songs from different websites.

	Number of songs	Price
Amanda	15	$14.85
Matthew	19	$16.91
Jana	20	$15.80
Jake	22	$19.58

1. Which friend received the best deal?

A. Amanda

B. Matthew

C. Jana

D. Jake

2. Which two friends paid the same rate per song?

F. Amanda and Matthew

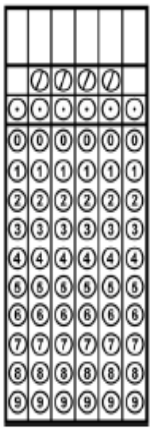
G. Jana and Jake

H. Amanda and Jana

I. Matthew and Jake

3. Gridded Response

Amanda downloads more songs at the same rate. In dollars, how much will she pay for 20 songs?



4. Matthew received a $25 gift certificate to download songs. At his same rate, how many songs can he download using the gift certificate?

A. 27

B. 28

C. 29

D. 30

Solve percent problems, including problems involving discounts, simple interest, taxes, tips, and percents of increase or decrease.

1. Ken Little is buying a surfboard priced at $360. If the sales tax rate is 6.5%, how much is the amount of tax on the surfboard?

   A. $21.60

   B. $22.32

   C. $23.40

   D. $25.20

2. At Sunset Nails it cost $30 for a pedicure and manicure. If Jenna wants to give the nail technician a 20% tip, how much should she plan to spend all together?

   F. $34

   G. $36

   H. $38

   I. $40

3. Sherri is purchasing an e-reader, which sells for $299. What will be the total cost of the e-reader after 5% sales tax is added to the price?

   A. $14.95

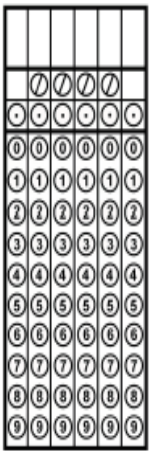
   B. $309.00

   C. $313.95

   D. $316.00

4. **Gridded Response**

   The math club went out to dinner after a tournament. The price of their dinner was $246. In dollars, what was the total cost of dinner, if they decided to leave a 15% tip?



5. Scott is purchasing truck for $19,000. If the state sales tax rate is $5\frac{3}{4}$%, what will be the total cost of the truck?

   F. $20,045.00

   G. $19,950.00

   H. $20,092.50

   I. $19,997.50

Solve problems involving similar figures.

Use the information below to answer questions 1 and 2.

Tonya is working on a project about nutrition. She enlarges the label from a carton of milk using a scale factor of $\frac{2}{5}$.

5.5 cm

Whole Milk
Serving Size 8 fl oz (240mL)
Servings Per Container 2

Amount Per Serving	
Calories 150	Calories from Fat 70
	% Daily Value*
Total Fat 8g	12%
Saturated Fat 5g	25%
Cholesterol 35mg	12%
Sodium 125mg	5%
Total Carbohydrate 12g	4%
Dietary Fiber 0g	0%
Sugars 11g	
Protein 8g	

Vitamin A 6% • Vitamin C 4%
Calcium 30% • Iron 2% • Vitamin D 25%

* Percent Daily Values are based on a 2,000 calorie diet. Your daily values may be higher or lower depending on your calorie needs.

	Calories	2,000	2,500
Total Fat	Less than	65g	80g
Sat Fat	Less than	20g	25g
Cholesterol	Less than	300mg	300mg
Sodium	Less than	2,400mg	2,400mg
Total Carbohydrate		300g	375g
Dietary Fiber		25g	30g

3 cm

1. What will be the height of the label after it is enlarged?

A. 13.75 centimeters

B. 13.5 centimeters

C. 14 centimeters

D. 11 centimeters

2. What will be the width of the label after it is enlarged?

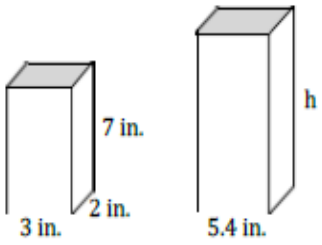
F. 15 centimeters

G. 5.25 centimeters

H. 6 centimeters

I. 7.5 centimeters

3. The two rectangular prisms shown below are similar.



What is the height of the larger prism?

A. 10.3 inches

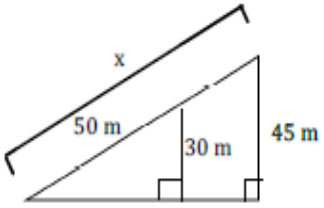
B. 18.9 inches

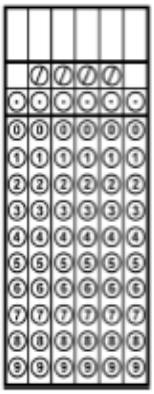
C. 12.6 inches

D. 14.4 inches

4. Gridded Response

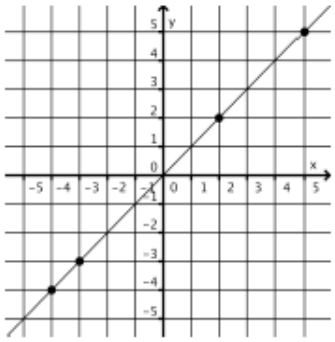
In meters, what is the value of x?





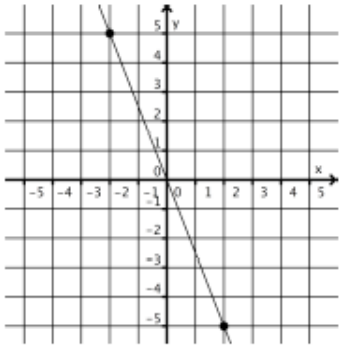
Graph proportional relationships and identify the unit rate as the slope of the related linear function.

1. What is the slope of the line in the graph below?



A. 1
C. 3
B. 2
D. 4

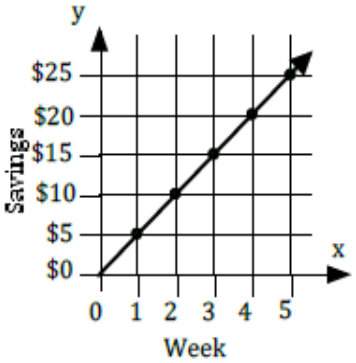
2. What is the slope of the line in the graph below?



F. $\frac{2}{5}$
H. $-\frac{5}{2}$
G. 5
I. –5

Use the graph below to answer questions 3 to 5.

Savings



3. What is the slope of the ray in the graph?

Answer:_____

4. Which of the following describes the rate of savings?

A. $1 per week
B. $5 per week
C. $10 per week
D. $20 per week

5. Does the graph represent a proportional relationship?

Answer:_____

Distinguish direct variation from other relationships, including inverse variation.

1. Which of the following statements will be true about the coordinates for all ordered pairs on an inverse variation graph?

A. The sum of x and y will be the same.

B. The difference of y and x will be the same.

C. The product of x and y will be the same.

D. The quotient of y and x will be the same.

2. Which of the following tables represent an inverse variation between x and y?

F.

x	0	1	2	3
y	0	5	10	15

G.

x	-1	-2	-3	-4
y	90	45	30	15

H.

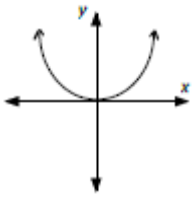
x	10	8	6	4
y	4	5	6	10

I.

x	3	5	7	9
y	1.5	2.5	3.5	4.5

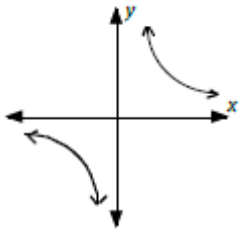
For questions 3 to 5, determine if each graph represents a direct variation, an inverse variation, or neither.

3.



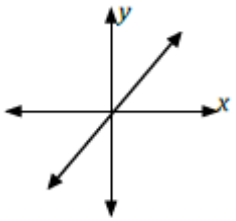
Answer:_____

4.



Answer:_____

5.



Answer:_____

Apply proportionality to measurement in multiple contexts, including scale drawings and constant speed.

1. Mr. Miller is building a dollhouse for his daughter Juanita. He is designing the dollhouse after a colonial home with a height of 10 yards. If he wants the dollhouse to be 4 feet tall, what scale should he use?

   A. 1 foot:$2\frac{1}{2}$ yards

   B. 2 feet:15 yards

   C. 2 feet:$7\frac{1}{2}$ yards

   D. 1 foot:5 yards

For questions 2 and 3, Mr. Miller is using a scale of 1-inch equals $\frac{3}{4}$ of a foot to design the dollhouse furniture.

2. What should be the length, in inches, of a toy bed modeled after Juanita's bed that has a length of $6\frac{1}{2}$ feet?

   F. $8\frac{1}{3}$

   G. $8\frac{2}{3}$

   H. $7\frac{1}{4}$

   I. $7\frac{3}{4}$

3. Mr. Miller measures Juanita dresser and builds a miniature dresser with a height of 5 inches. What is the height of Juanita's dresser in feet?

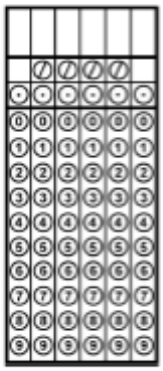
   Answer:_____

4. Juanita wants to hang a picture of her family in the dollhouse. She takes a 5-inch by 7-inch photo of her family and reduces it by a scale factor of 2 to 1. What will be the dimensions of the photo in the dollhouse?

   Answer:_____

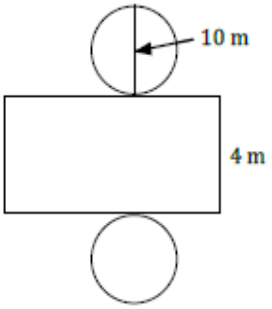
5. **Gridded Response**

   Mrs. Miller makes curtains for dollhouses using the ratio 1 centimeter:1.5 meters. If the length of one curtain is 6 meters, what is the length of one dollhouse curtain, in centimeters?



Justify and apply formulas for surface area and volume of pyramids, prisms, cylinders, and cones.

1. The net of the right circular cylinder is shown below.



What is the surface area of the right circular cylinder? Use $\pi = 3.14$.

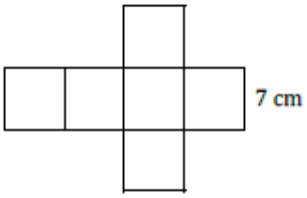
A. 3140 m^2

B. 282.6 m^2

C. 188.4 m^2

D. 168.5 m^2

2. The net of a right square prism or cube is shown below.



What is the surface area of the cube?

F. 294 cm^2

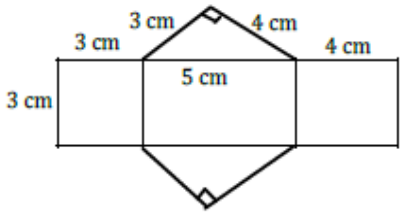
G. 147 cm^2

H. 84 cm^2

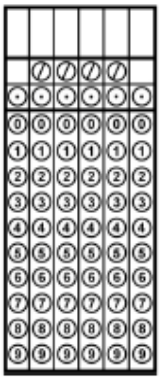
I. 42 cm^2

3. Gridded Response

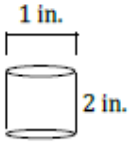
The net of a right triangular prism is shown below.



In square centimeters, what is the surface area of the right triangular prism?



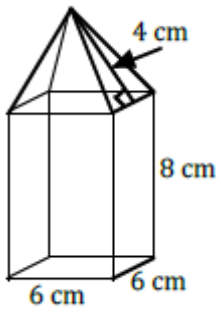
4. The surface of the cylinder below will be painted, except for one base. What is the area of the surface that will be painted? Use $\pi = 3.14$. Round to the nearest tenth of a square inch.



Answer:

Use formulas to find surface areas and volume of three-dimensional composite shapes.

Use the figure to answer questions 1 to 5.



1. Which of the following is NOT part of the surface area of the composite figure?

A. left side of the rectangular prism

B. one base of the rectangular prism

C. front and back triangular faces of the pyramid

D. base of the pyramid and top base of the rectangular prism

2. What is the total area of the four triangular faces of the pyramid?

F. 24 cm^2

G. 48 cm^2

H. 96 cm^2

I. 192 cm^2

3. What is the total area of the four rectangular lateral faces of the rectangular prism?

A. 48 cm^2

B. 96 cm^2

C. 144 cm^2

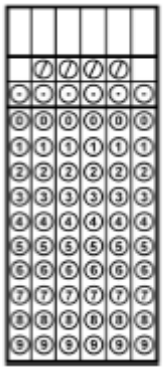
D. 192 cm^2

4. What is the area of the square base of the rectangular prism?

Answer:_____

5. Gridded Response

In square centimeters, what is the total surface area of the figure?



Use and justify the rules for adding, subtracting, multiplying, dividing, and finding the absolute value of integers.

1. Which of the following expressions has a negative answer?

A. 0.25(16)

B. –5(–15)

C. $\frac{1}{3}(-123)$

D. –40 ÷ (–2.5)

For 2-3, in three plays, a football team lost 6 yards, gained 10 yards, and then lost 3 more yards.

2. Which expression best represents the yards lost and gained?

F. 6 – 10 + 3

G. –6 – 10 + 3

H. –6 + 10 – 3

I. –6 – 10 – 3

3. Which integer best represents the total yards lost or gained?

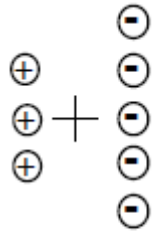
A. –1

B. 0

C. 1

D. 2

For 4-5, use the two-colored counters displayed below.



4. Which of the following expressions is modeled by the two-colored counters?

F. 3 – (–5)

G. 3 + (–5)

H. –3 + (–5)

I. –3 – (–5)

5. What is the sum represented by the two-colored counters above?

Answer:_____

Identify and plot ordered pairs in all four quadrants of the coordinate plane.

1. Which of the following statements is NOT true?

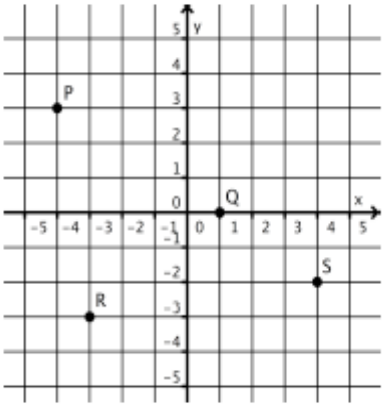
   A. The point (-3, 7) lies in quadrant II.

   B. The point (10, 0) lies on the x-axis.

   C. The point (4, -1) lies in quadrant III.

   D. The point (5, 6) lies in quadrant I.

2. Given the graph below.



   Identify the coordinates of points P, Q, R, and S.

   F. P(-4, 3), Q(1, 0), R(-3, -3), S(4, 2)

   G. P(-4, 3), Q(1, 0), R(-3, -3), S(4, -2)

   H. P(3, -4), Q(0, 1), R(-3, -3), S(-2, 4)

   I. P(-4, 3), Q(0, 1), R(3, 3), S(-2, 4)

3. What is the x coordinate of every point on the y-axis?

   Answer:_____

4. Which triangle has all three of its vertices in quadrant II?

   A. ΔJKL: J(-3, 1), K(-6, 4), L(0, 5)

   B. ΔMNO: L(5, 2), M(3, 4), N(1, 1)

   C. ΔPQR: P(2, -1), Q(5, -2), R(-1, 4)

   D. ΔSTU: S(-2, 4), T(-6, 4), U(-3, 2)

5. Which of the following statements is true for any point in quadrant III?

   F. Both the x and the y coordinates are positive.

   G. The x coordinate will be positive and the y coordinate will be negative.

   H. The x coordinate will be negative and the y coordinate will be positive.

   I. Both the x and the y coordinates are negative.

Formulate and use different strategies to solve one-step and two-step linear equations, including equations with rational coefficients.

1. Which steps would solve the equation $\frac{m}{1.5} - 6 = -2$?

A. add 6 to both sides, then multiply both sides by 1.5

B. add 6 to both sides, then divide both sides by 1.5

C. subtract 6 from both sides, then multiply both sides by 1.5

D. subtract 6 from both sides, then divide both sides by 1.5

For 2-3, a skyscraper in New York is 500 feet tall. This is 105 feet less than the height of the Canadian National Tower divided by 3.

2. Which of the following equations can be used to find the height, h, in feet of the Canadian National Tower?

F. $3h - 105 = 500$

G. $\frac{h}{3} - 105 = 500$

H. $\frac{h}{3} + 105 = 500$

I. $3h + 105 = 500$

3. How tall is the Canadian National Tower?

A. 1185 feet

B. 202 feet

C. 1395 feet

D. 1815 feet

4. What is the value of d if $\frac{d}{2} + 4 = -2$?

F. –12

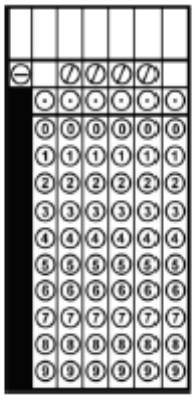
G. –16

H. 4

I. –4

5. Gridded Response

Amber purchased a shirt for $25. The price of the shirt is $5 more than half the price of a pair of jeans. How much, in dollars, do the jeans cost?



Use the properties of equality to represent an equation in a different way and to show that two equations are equivalent in a given context.

1. Which of the following is equivalent to $5 + m = 8$?

A. $10 - 2m = 16$

B. $2m - 10 = -16$

C. $-20 - 4m = 64$

D. $2m + 10 = 16$

2. Which of the following statements uses the Substitution Property of Equality?

F. If $6x - 4 = 7$ and $7 = 2x - 2$, then $2x - 5 = 3x - 2$.

G. If $2x + y = 12$ and $y = 8$, then $2x + 8 = 12$.

H. If $3x = -9$, then $-9 = 3x$.

I. If $x + 1 = 10$, then $x = 9$.

3. When solving equations, many people prefer to have the unknown on the left side of the equation. What property justifies changing the equation $15 = -6 + 3y$ to the equation $-6 + 3y = 15$?

A. Symmetric Property of Equality

B. Commutative Property of Addition

C. Transitive Property of Equality

D. Reflexive Property

4. If $v + 2w + 3 = 23$ and $v = w$, which of the following is true?

F. $2w + 3 = 23$

G. $2w^2 + 3 = 23$

H. $3w + 3 = 23$

I. $w + 3 = 23$

5. We can start to solve the following equation by applying the Multiplication Property of Equality.

$$\frac{2x+1}{3} = 2 + x$$

Write the equation that will be the result after applying the Multiplication Property of Equality.

Answer: _____