



Math  
Spring Operational 2015  
  
Grade 6  
End of Year Released Items

1. A table of  $x$  and  $y$  values is shown.

$x$	$y$
2	6
5	15
8	24

Based on the information shown in the table, select the correct letters and numbers to complete the statement.

Select from the drop-down menus to correctly complete the statement.

The value of 

Choose...  

$x$   
 $y$

 is 3 times the corresponding value of

Choose...  

$x$   
 $y$

, and the ratio of  $x$  to  $y$  is 

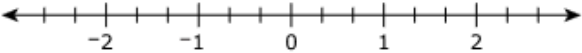
Choose...  

1:3  
3:1

.

2. Show the location of  $-1\frac{2}{3}$ .

Select a place on the number line to plot the point.



3. Which statement about the temperatures  $-13.4^{\circ}\text{C}$  and  $-13.2^{\circ}\text{C}$  is true?

- ☐ A.  $-13.4^{\circ}\text{C} < -13.2^{\circ}\text{C}$  because  $-13.2^{\circ}\text{C}$  is warmer than  $-13.4^{\circ}\text{C}$ .
- ☐ B.  $-13.4^{\circ}\text{C} < -13.2^{\circ}\text{C}$  because  $-13.2^{\circ}\text{C}$  is colder than  $-13.4^{\circ}\text{C}$ .
- ☐ C.  $-13.4^{\circ}\text{C} > -13.2^{\circ}\text{C}$  because  $-13.2^{\circ}\text{C}$  is warmer than  $-13.4^{\circ}\text{C}$ .
- ☐ D.  $-13.4^{\circ}\text{C} > -13.2^{\circ}\text{C}$  because  $-13.2^{\circ}\text{C}$  is colder than  $-13.4^{\circ}\text{C}$ .

4. What is the quotient of  $13,632 \div 48$ ?

- ☐ A. 262 R36
- ☐ B. 272
- ☐ C. 284
- ☐ D. 325 R32

5. What is the value of the expression  $86.24 - 79.764$ ?

- ☐ A. 6.476
- ☐ B. 6.484
- ☐ C. 13.524
- ☐ D. 71.140

VF647465

6. Which of these expressions are equivalent to  $\frac{p}{3}$ ?

Select **each** correct answer.

- ☐ A.  $p - \frac{2}{3}p$
- ☐ B.  $\frac{1}{3}p$
- ☐ C.  $p - 3$
- ☐ D.  $3 \div p$
- ☐ E.  $\frac{3p}{9}$
- ☐ F.  $\frac{1}{3}p + \frac{1}{3}p + \frac{1}{3}p$

7. Sally rents a life jacket for a one-time fee of \$5. She then rents a canoe for \$15 per hour. Which expression represents the total cost, in dollars, to rent the life jacket and the canoe for  $h$  hours?

- ☐ A.  $5 + 15h$
- ☐ B.  $10h$
- ☐ C.  $15 + 5h$
- ☐ D.  $20h$

8. Write an expression, using an exponent, equivalent to  $5 \times 5 \times 5 \times 5$ .

Enter your expression in the space provided.

↶

↷

🗑

+

−

×

÷

⎵

⎶

$y^x$

$\sqrt{\phantom{x}}$

$\sqrt[3]{\phantom{x}}$

=

(.)

%

▼

9. Which questions are statistical questions?

Select **each** correct answer.

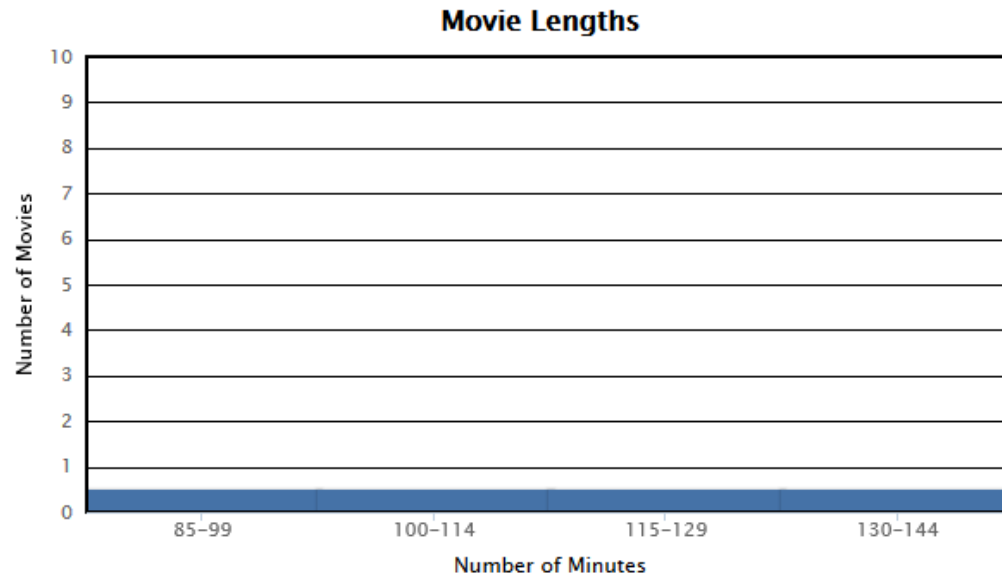
- ☐ A. How old is Mr. Patterson?
- ☐ B. How many states has Juanita visited?
- ☐ C. How many students are in Mrs. Lee's class today?
- ☐ D. How many students eat lunch in the cafeteria each day?
- ☐ E. How many pets does each student at your school have at home?

10. The lengths, in minutes, of the movies currently showing at a movie theater are shown in the data set.

89	98	109	123	123	125	125
128	130	135	137	140	143	143

Create a histogram that represents the data.

Drag the top of each bar to the correct height.



11. Riley took 5 tests in science.

- Each test had a different score.
- The mean score of the tests was 90%.
- The median score of the tests was 85%.

Based on this information, select the **two** statements that must be true.

- ☐ A. More than half of the scores were 85% or greater.
- ☐ B. More than half of the scores were 90% or greater.
- ☐ C. There were no scores less than 85%.
- ☐ D. There were no scores less than 90%.
- ☐ E. At least one score was exactly 85%.
- ☐ F. At least one score was exactly 90%.

12. A can contains  $\frac{15}{16}$  pound of vegetables. One serving of these vegetables weighs  $\frac{1}{4}$  pound.

What is the total number of servings of vegetables in the can?

- ☐ A.  $\frac{15}{64}$  serving
- ☐ B.  $\frac{4}{15}$  serving
- ☐ C.  $1\frac{3}{16}$  servings
- ☐ D.  $3\frac{3}{4}$  servings

13. Mr. Jones has  $\frac{3}{4}$  cup of fertilizer. He will use a  $\frac{1}{8}$  cup measuring scoop to pour all of the fertilizer onto his plants. How many times will Mr. Jones fill the measuring scoop with fertilizer?

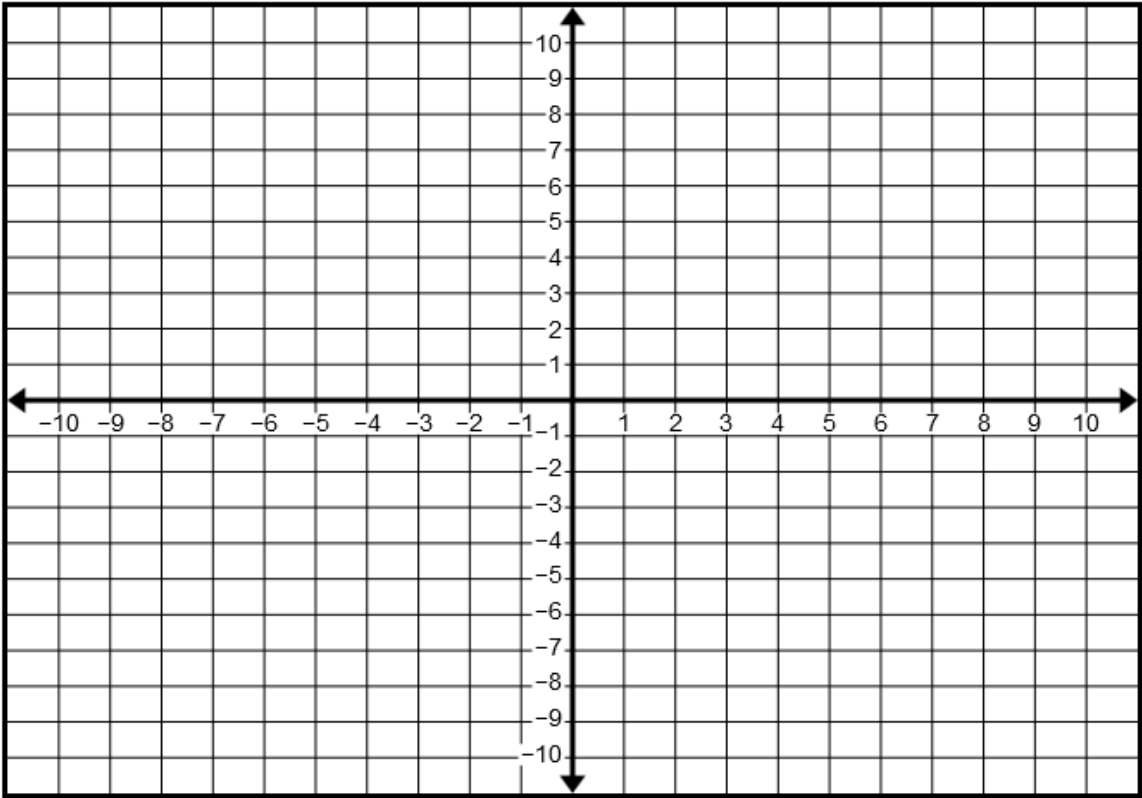
Enter your answer in the box.

14. What is the result when 75,069 is divided by 45?

Enter your answer in the box.

15. Point A is located at  $( -2, 4 )$ .

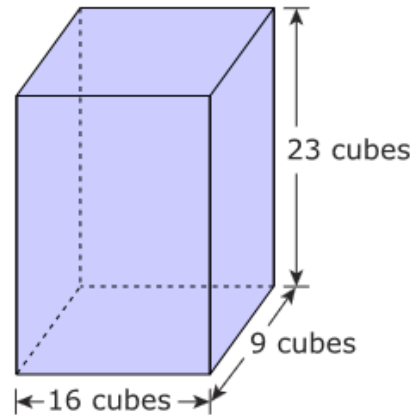
Select the place on the coordinate grid to plot the point.



16. Sonia has two packages of hamburger meat. The first package weighs 1.76 pounds and the second package weighs 2.29 pounds. She mixes the two packages together and forms hamburgers that weigh 0.25 pound each. What is the greatest number of 0.25-pound hamburgers Sonia can make using the hamburger meat she has?

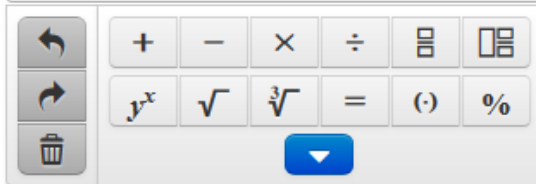
- ☐ A. 2
- ☐ B. 7
- ☐ C. 9
- ☐ D. 16

17. A right rectangular prism is packed with identical cubes. The dimensions of the prism are given in terms of the number of cubes needed to fill the prism.



The side length of each cube is  $\frac{1}{4}$  inch. What is the volume, in cubic inches, of the right rectangular prism?

Enter your answer in the space provided. Enter **only** your answer.



18. What is  $78.32 + 6.784$ ?

Enter your answer in the box.



22. Select the expression that is equivalent to  $48 + 12$  .

- ☐ A.  $6(8 + 6)$
- ☐ B.  $12(4 + 1)$
- ☐ C.  $4(44 + 3)$
- ☐ D.  $8(6 + 4)$

23. What is the value of  $0.2^3$  ?

Enter your answer in the box.

24. Joanna earns \$12 per hour at her job. Last week, Joanna earned \$432.

**Part A**

Create an equation that can be used to determine the number of hours,  $h$ , Joanna worked last week.

Drag and drop the correct number or operation into each box.

$h =$

**Part B**

What is the number of hours Joanna worked last week?

Enter your answer in the box.

hours

25.

**Data Set**

21      30      39      43      58      67

**Part A**

The data set shows the number of minutes Julio practiced his trumpet on each of 6 days during a week. What is the mean number of minutes Julio practiced over these 6 days?

Enter your answer in the box.

**Part B**

Julio practiced a 7th day during the week. The mean number of minutes he practiced over all 7 days was 45 minutes. How many minutes did Julio practice on the 7th day?

Enter your answer in the box.

26. A ball is dropped from different heights. The table shows the height of the first bounce after the ball is dropped.

**Bouncing Ball Experiment**

Height of Drop (in inches)	Height of Bounce (in inches)
10	5
20	10
30	15

**Part A**

Using the data from the table, which equation can be used to find  $y$ , the height of the first bounce, in inches, when the ball is dropped from a height of  $x$  inches?

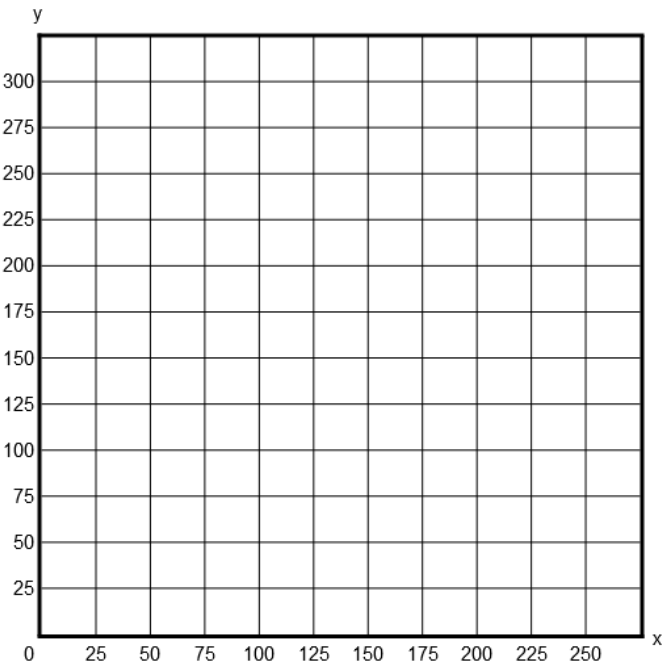
- ☐ A.  $y = 2x$
- ☐ B.  $y = \frac{x}{2}$
- ☐ C.  $y = 5x$
- ☐ D.  $y = \frac{x}{5}$

**Part B**

On the coordinate plane, draw a graph that shows the relationship between the height from which the ball is dropped,  $x$ , and the height of the first bounce,  $y$ .

To graph a line, select two points on the coordinate plane. A line will be drawn through the points.

**Bouncing Ball Experiment**



27. Amy can ride her bike 4 miles in 30 minutes. Sebastian can ride his bike 3 miles in 24 minutes.

**Part A**

At her current rate, what is the distance, in miles, Amy can ride her bike in 12 minutes?

- ☐ A. 1.6
- ☐ B. 2.5
- ☐ C. 3.0
- ☐ D. 9.0

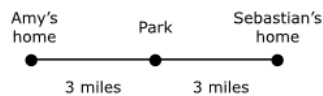
**Part B**

At his current rate, what is the distance, in miles, Sebastian can ride his bike in 1 hour?

- ☐ A. 0.125
- ☐ B. 3.0
- ☐ C. 7.5
- ☐ D. 8.0

**Part C**

Sebastian and Amy both ride from their homes to the park.



If they both start riding at the same time and ride at their current rates, how long will one have to wait for the other to arrive?

- ☐ A. Amy will have to wait 0.5 minute for Sebastian.
- ☐ B. Amy will have to wait 1.5 minutes for Sebastian.
- ☐ C. Sebastian will have to wait 3 minutes for Amy.
- ☐ D. Sebastian will have to wait 6 minutes for Amy.

**Part D**

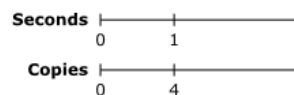
Amy and Sebastian leave the park at the same time and ride their bikes at their current rates back toward their homes.



How far apart are they, to the nearest tenth of a mile, after 14 minutes?

- ☐ A. 0.5
- ☐ B. 1.1
- ☐ C. 3.6
- ☐ D. 6.0

28.



The diagram represents the unit rate of making copies on a copy machine.

Which table represents the rate of making copies on this copy machine?

☐ A.

Time (in seconds)	Number of Copies
40	10
60	15
100	25
400	100

☐ B.

Time (in seconds)	Number of Copies
10	40
15	60
25	100
100	400

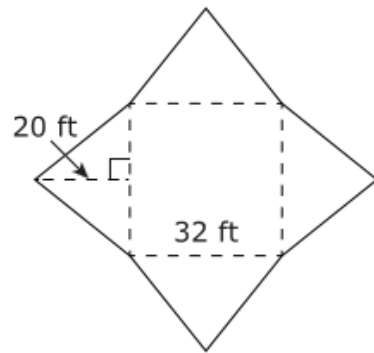
☐ C.

Time (in seconds)	Number of Copies
13	10
18	15
28	25
103	100

☐ D.

Time (in seconds)	Number of Copies
10	13
15	18
25	28
100	103

29. The net shown represents a square pyramid.



- Determine the area, in square feet, of one triangular face of the square pyramid.
- Determine the total surface area, in square feet, of the square pyramid.

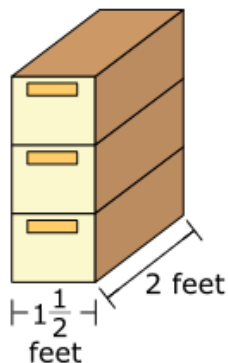
Enter your answers in the space provided. Enter **only** your answers.

Area of one triangular face:  sq ft

Total surface area:  sq ft

	+	-	×	÷		
	$y^x$	$\sqrt{\phantom{x}}$	$\sqrt[3]{\phantom{x}}$	=	(.)	%

30. Denzel has two stacks of identical storage boxes in his room. One stack has 3 boxes and the other stack has 5 boxes. The volume of the stack of 3 storage boxes is  $11\frac{1}{4}$  cubic feet. The drawing shows the stack of 3 storage boxes.



- What is the height, in feet, of 1 storage box?
- What is the volume, in cubic feet, of the stack of 5 storage boxes?

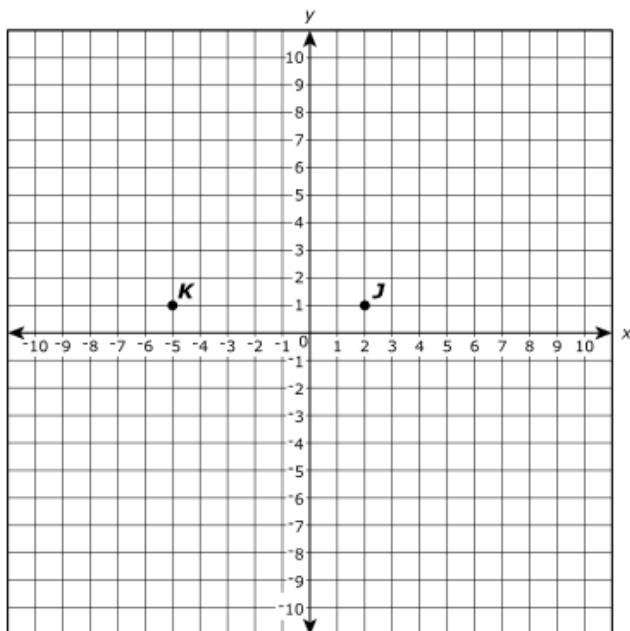
Enter your answers in the space provided. Enter **only** your answers.

height:

volume:

	+	-	×	÷		
	$y^x$	$\sqrt{\phantom{x}}$	$\sqrt[3]{\phantom{x}}$	=	(.)	%

31. Points  $J$  and  $K$ , plotted on the coordinate grid, are two vertices of rectangle  $JKLM$ . Rectangle  $JKLM$  has an area of 7 square units. Point  $J$  is located at  $(2, 1)$ , and point  $K$  is located at  $(-5, 1)$ . Each vertex of the rectangle is located at a point that has integer coordinates.



### Part A

Which points could be another vertex of the rectangle?

Select **each** correct answer.

- ☐ A.  $(-5, 0)$
- ☐ B.  $(-5, 2)$
- ☐ C.  $(1, 1)$
- ☐ D.  $(2, -6)$
- ☐ E.  $(2, 0)$
- ☐ F.  $(9, 1)$
- ☐ G.  $(2, 2)$

### Part B

What is the perimeter of rectangle  $JKLM$ ?

Enter your answer in the box.

 units

32. Natalie uses a 15% off coupon when she buys a camera. The original price of the camera is \$45.00. How much money does Natalie save by using the coupon?

Enter your answer in the box.

\$

33.



Maggie is making a necklace using a 13-inch string and identical beads.

Maggie has placed 12 beads next to each other starting at the left end of the string as shown in the figure. The 12 beads fill 3 inches of the string.

**Part A**

How many total beads will completely fill the 13-inch string?

Enter your answer in the box.

**Part B**

After filling the string from end to end, Maggie decides to leave one inch at each end of the string with no beads. How many beads does she need to remove from the beads she used to completely fill the string?

Enter your answer in the box.

34. Jill bought a pound of strawberries for \$4.00. What is the price, in dollars, per **ounce** of strawberries?

Enter your answer in the box.