

Math  
Spring 2019

Grade 7  
Released Items

1.

M700202

Which expression is equivalent to  $\frac{1}{6} - \frac{3}{8} + \frac{1}{2}$ ?

- A.  $\frac{1}{6} - \left(-\frac{3}{8}\right) + \frac{1}{2}$
- B.  $\frac{1}{6} - \left(-\frac{3}{8}\right) + \left(-\frac{1}{2}\right)$
- C.  $\frac{1}{6} + \left(-\frac{3}{8}\right) + \left(-\frac{1}{2}\right)$
- D.  $\frac{1}{6} + \left(-\frac{3}{8}\right) + \frac{1}{2}$

2.

M21515

A company uses  $x$  amount of plastic to make bags. The company decreases this amount by 40%. Which expression represents the amount of plastic used after this decrease?

Select **each** correct answer.

- A.  $0.4x$
- B.  $0.6x$
- C.  $1 - 0.4x$
- D.  $1 - 0.6x$
- E.  $x - 0.4x$
- F.  $x - 0.6x$

3.

M21537P

The temperature at sunrise was  $-2^{\circ}\text{F}$ . The temperature at sunset was  $18^{\circ}\text{F}$  warmer than it was at sunrise. What was the temperature at sunset?

- A.  $-20^{\circ}\text{F}$
- B.  $-16^{\circ}\text{F}$
- C.  $16^{\circ}\text{F}$
- D.  $20^{\circ}\text{F}$

4.

M21665

Solve each equation.

$$\frac{1}{2}\left(x - \frac{3}{4}\right) = \frac{5}{12} \qquad \frac{3}{4}y - \frac{3}{2} = \frac{5}{2}$$

- A.  $x = \frac{19}{12}$  and  $y = \frac{4}{3}$
- B.  $x = \frac{7}{3}$  and  $y = \frac{4}{3}$
- C.  $x = \frac{19}{12}$  and  $y = \frac{16}{3}$
- D.  $x = \frac{7}{3}$  and  $y = \frac{16}{3}$

5.

VH122690

Javier will ask a survey question to determine the average number of times per month people around the United States shop for groceries.

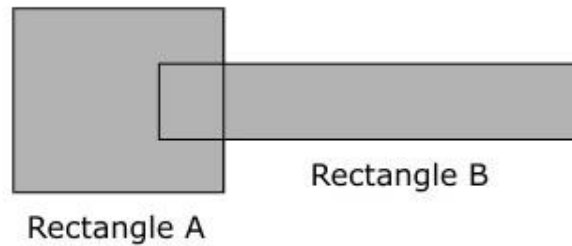
Which sample should Javier use to get results that are the **most** representative of the total population?

- A. a random sample of 1,000 people from his town
- B. a random sample of 1,000 people from his state
- C. a random sample of 1,000 people from each of the 50 states
- D. a random sample of 1,000 people from 5 local grocery stores

6.

VF654282

Teams A and B are playing a game in a gym by tossing beanbags. Tape is placed on the gym floor to mark off the areas in which the teams can score points, as shown in the diagram.



Rectangle A represents the area in which Team A can score points. Rectangle B represents the area in which Team B can score points. The place where both rectangles overlap is the area in which both teams can score points.

- The area of Rectangle A is 10.5 square meters.
- The area of Rectangle B is 8.4 square meters.
- The area of the overlap of Rectangles A and B is  $\frac{3}{25}$  the area of Rectangle A.

What is the total area, in square meters, of the gym floor that is marked off by tape? Show all your work.

Enter your answer and your work in the space provided.



▼ Math symbols

+	-	×	÷
±	-	·	/
=	≠	$\frac{\square}{\square}$	$\frac{\square\square}{\square\square}$
$y^x$	$\sqrt{\quad}$	$\sqrt[3]{\quad}$	$\pi$
(.)	°	·	

► Relations

► Geometry

**Part A**

An appliance store sells an oven for 25% off the original price. The sale price is \$251.85, not including tax. What is the price of the oven, not including tax, before the discount is applied?

- A. \$276.85
- B. \$314.81
- C. \$326.85
- D. \$335.80

**Part B**

One day, the appliance store offers a \$50 discount on all purchases over \$300. The store also has a sale with 15% off the price of all refrigerators. The 15% discount is applied after the \$50 discount. What is the price, in dollars, of a \$435 refrigerator after both discounts?

Enter your answer in the box.

**Part C**

At this appliance store, the monthly sales were \$52,900 in May and \$78,300 in June. What is the percent increase in the sales from May to June, rounded to the nearest whole number?

Enter your answer in the box.

**Part D**

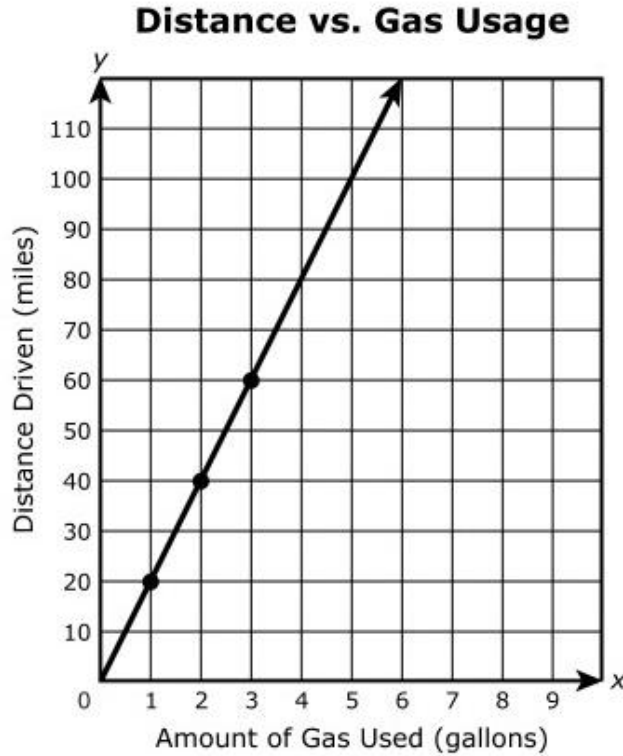
Jordan is a salesperson at the store. Jordan has a base monthly salary of \$1,450 and also earns a commission of 5% on his monthly sales. Jordan would like to earn a monthly salary of \$1,800 in July. What amount of sales, in dollars, does Jordan need in order to reach the desired salary goal in July?

Enter your answer in the box.

8.

M22640

The graph shows the distance a car is driven for each gallon of gas used.



- Does the graph represent a proportional relationship? Explain your answer.
- How many miles can be driven using 5.5 gallons of gas?
- Use the graph to explain how you found the number of miles that can be driven using 5.5 gallons of gas.

Enter your explanations and your answers in the space provided.



▼ Math symbols

+	-	×	÷
±	-	·	/
=	≠	$\frac{\square}{\square}$	$\frac{\square}{\square}$
$y^x$	$\sqrt{\quad}$	$\sqrt[3]{\quad}$	$\pi$
(·)	°	·	

► Relations

► Geometry

9.

VH083752

**Part A**

A garden is in the shape of a circle with a radius of 10 feet. Edging is placed around the garden. How much edging, in feet, is needed to go around the garden? Round to the nearest whole number.

Enter your answer in the box.

**Part B**

Another garden is in the shape of a semicircle with a radius of 25 feet. Edging is placed around this garden.

How much edging, in feet, is needed to go around this garden? Round to the nearest whole number.

Enter your answer in the box.

10.

VH122701

Ethan surveyed 120 registered voters at random out of a total of 12,600 registered voters in his town. He asked them who they planned to vote for in the upcoming election.

**Part A**

Ethan's first survey was conducted on Sunday. The results are shown in this table.

**Number of Expected Votes**

Ms. Gibson	Ms. Reynolds
45	75

Based on the results of Ethan's first survey, what is the total number of registered voters expected to vote for Ms. Gibson in the upcoming election?

Enter your answer in the box.

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**10. (continued from previous page)****VH122701****Part B**

Ethan surveyed a different random sample of 120 registered voters in his town each day for the rest of the week. The results of his survey for the week, including Sunday, are shown in this table.

**Number of Expected Votes**

Day	Ms. Gibson	Ms. Reynolds
Sunday	45	75
Monday	43	77
Tuesday	48	72
Wednesday	44	76
Thursday	48	72
Friday	45	75
Saturday	43	77

Based on the results of the survey each day, what is the **best** prediction for how many more votes Ms. Reynolds is expected to receive than Ms. Gibson is in the upcoming election?

- A. approximately 1,500 to 2,500 more votes
- B. approximately 2,500 to 3,500 more votes
- C. approximately 3,500 to 4,500 more votes
- D. approximately 4,500 to 5,500 more votes

11.

VH252719

A small animal can eat an amount of food that is equivalent to  $\frac{2}{5}$  its body weight in  $\frac{1}{2}$  hour.

At this rate, what fraction of its body weight in food can the animal eat in 1 hour?

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

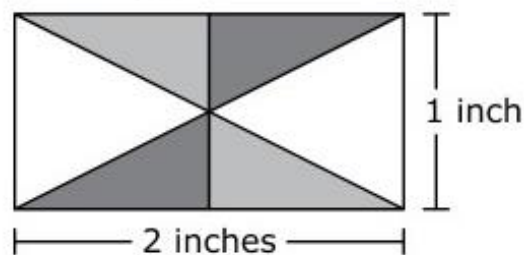
  

	+	-	×	÷	$\frac{\square}{\square}$	$\frac{\square}{\square}$
	$y^x$	$\sqrt{\quad}$	$\sqrt[3]{\quad}$	=	(.)	%

12.

VH145833

This is a scale drawing of a flag.



The scale factor of the drawing to the actual flag is represented by the ratio 1:18.

**Part A**

What is the area, in square inches, of the actual flag?

Enter your answer in the box.

**Part B**

A letter "L" with a height of 9 inches is drawn on the actual flag.

What should be the height, in inches, of the letter "L" on the scale drawing?

Enter your answer in the box.

13.

5082-M25531

**Part A**

The total yearly cost to rent a trumpet is \$114. The monthly cost is constant with no initial fee.

A person rents a trumpet for 3 years and 5 months.

- What is the total cost, in dollars, for the person to rent the trumpet?
- Show your work or explain your answer.
- Write an equation that represents the relationship between  $m$ , the number of months a trumpet is rented, and  $t$ , the total cost to rent the trumpet.
- Explain your equation.

Enter your answer and your work or explanation in the space provided.



▼ Math symbols

+	-	×	÷
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(.)	°	·	

► Relations

► Geometry

**Part B**

Another person pays \$90.87 each month toward the purchase of a saxophone. After 5 months, the person has paid 65% of the total cost of the saxophone.

- What is the total cost, in dollars, of the saxophone?
- Show your work or explain your answer.

Enter your answer and your work or explanation in the space provided.



▼ Math symbols

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(.)	°	·	

► Relations

► Geometry

14.

VH014119

Which ordered pairs are in a proportional relationship with  $(0.2, 0.3)$ ?

Select **each** correct answer.

A.  $(1.2, 2.3)$

B.  $(2.7, 4.3)$

C.  $(3.2, 4.8)$

D.  $(3.5, 5.3)$

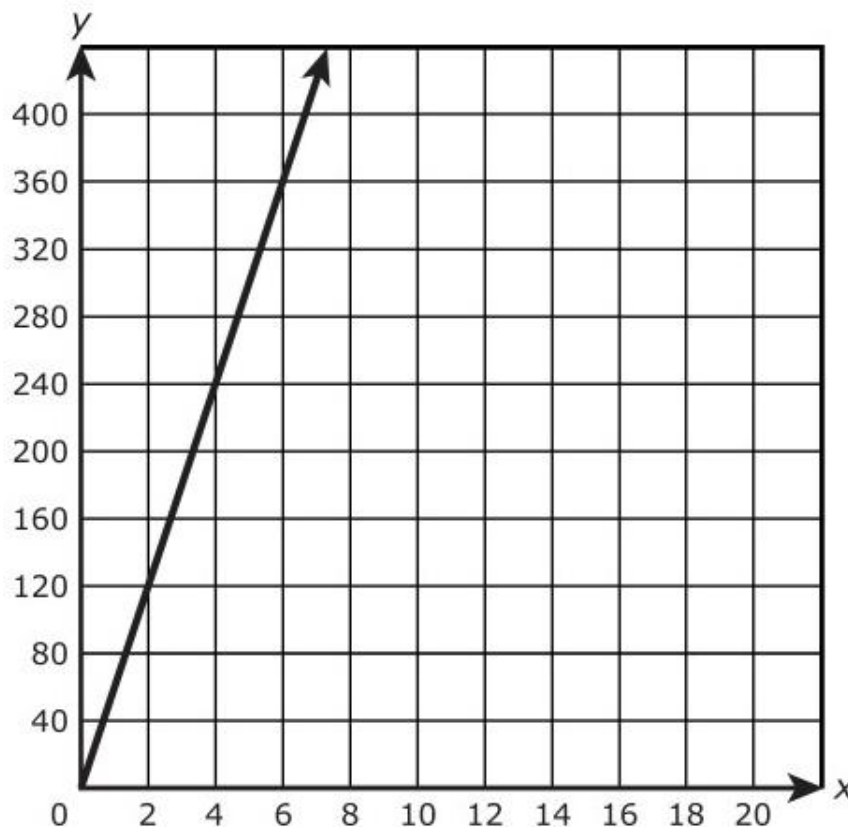
E.  $(5.2, 7.8)$

15.

1590-M22548

Part A

Consider the graph shown.



Find the constant of proportionality of the graph.

Show your work or explain your answer.

Enter your answer and your work or explanation in the space provided.



▼ Math symbols

+	-	×	÷
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$y^x$	$\sqrt{\quad}$	$\sqrt[3]{\quad}$	$\pi$
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► Relations

► Geometry

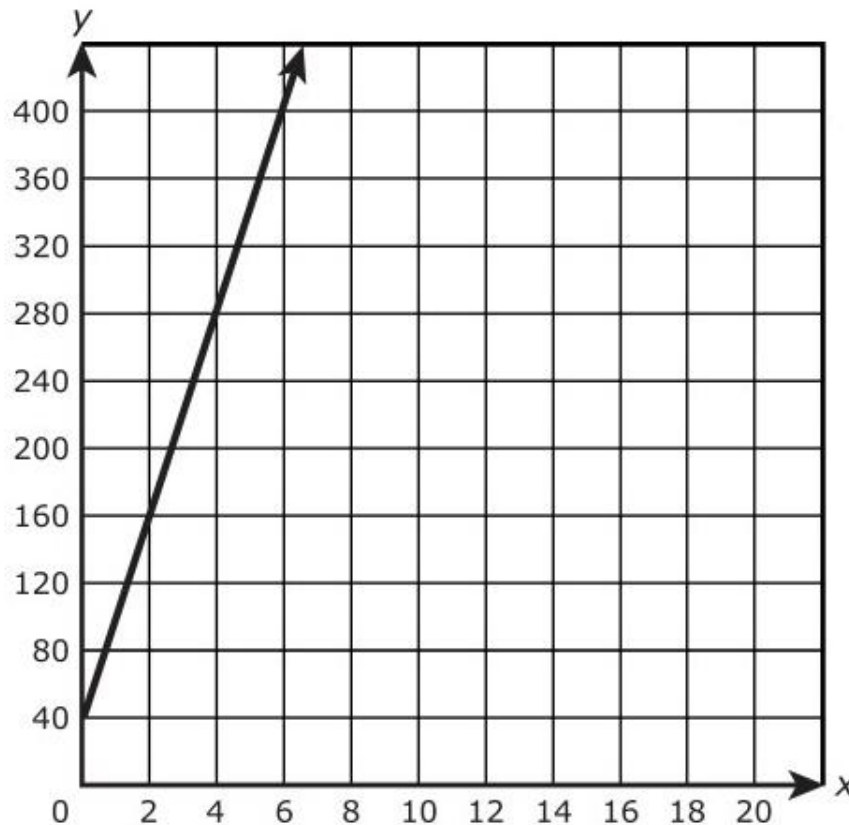
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15. (continued from previous page)

1590-M22548

Part B

The original graph is changed by moving the graph up 40 units, as shown.



A student uses the point  $(4, 280)$  to write the equation  $y = 70x$ . The student claims that this equation represents the relationship shown in the new graph because 280 divided by 4 is 70.

- Explain the error in the student's reasoning.
- Use a different point from the graph to explain why the student's equation does not represent the relationship shown in the new graph.

Enter your explanations in the space provided.



▼ Math symbols

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► Relations

► Geometry