

Directions: Answer the following question(s).

1 Charles made the following observation:

"When I divide two fractions, the divisor is larger than the quotient."

Which of the following equations would prove Charles's statement false? Select *all* that apply.

A. $\frac{3}{4} \div \frac{1}{3}$

B. $\frac{4}{6} \div \frac{2}{5}$

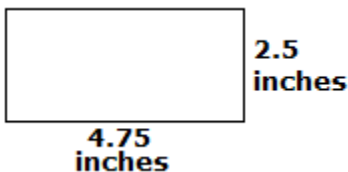
C. $\frac{1}{2} \div \frac{6}{7}$

D. $\frac{2}{6} \div \frac{4}{5}$

2 A triangle has a side 4.23 meters in length, a 63.2° angle, and a 75.9° angle. Which of the following statements about this triangle are *true*? Select *all* that apply.

- A. This triangle is an obtuse triangle.
- B. This triangle cannot be an equilateral triangle.
- C. This triangle must have a third angle measuring 40.9° .
- D. This triangle could be an isosceles triangle.

3 This scale drawing of a rectangular wall has dimensions 4.75 inches by 2.5 inches. The length of the shorter side of the actual wall is 36 inches.

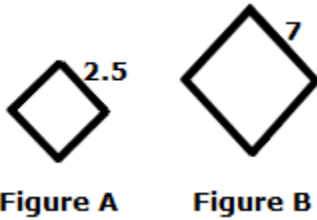


Enter the area of the actual wall.

square inches

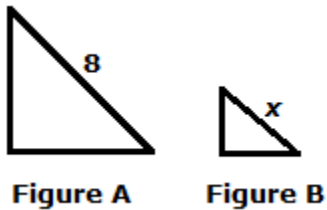
Directions: Answer the following question(s).

- 4 Figure B is a scale image of Figure A, as shown.



Enter the scale factor applied to Figure A to produce Figure B.

- 5 Figure A is a scale image of Figure B, as shown.



The scale that maps Figure A onto Figure B is 1:0.25.

Enter the value of x.

- 6 Ava used the following equation in order to solve a math problem involving integers.

$$\frac{-h}{-k} = j$$

If the equation Ava used is correct, which of the following equations is *not* correct?

A. $-j = \frac{-h}{-k}$

B. $j = \frac{h}{k}$

C. $-j = \frac{-h}{k}$

D. $-j = \frac{h}{-k}$

Directions: Answer the following question(s).

7 Mrs. Anderson writes the following expressions on the board:

Expression 1: $4(6y - 2x) - 4x$

Expression 2: $-12x + 24y$

Mrs. Anderson asks her student, William, to prove that these expressions are equivalent. Which of the following options could William use?

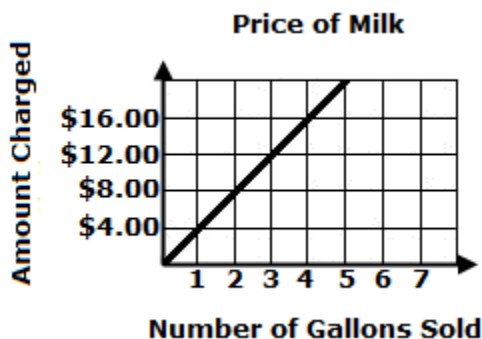
- A. William could substitute the values $x = 2$ and $y = 3$ for Expression 1 and $x = 3$ and $y = 2$ for Expression 2. Then, William could solve both expressions to show that they result in the same value.
- B. William could multiply Expression 2 by 4 and compare the value to Expression 1.
- C. William could multiply $-2x$ by 4 and then subtract $4x$ to combine terms. Then, William could compare that result with Expression 2.
- D. William could substitute the values $x = 2$ and $y = 3$ into both Expression 1 and Expression 2. Then, William could compare the results to see if they are the same value.

8

Madelyn states that the value of the expression $\left(\frac{-2}{3}\right)x^2 + x + 7\frac{3}{4}$ is sometimes negative. Which of the following values of x support Madelyn's claim?

- A. $-\frac{1}{4}$
- B. -2
- C. 3.5
- D. $8\frac{1}{4}$

9 The price of milk at a grocery store is shown in the graph below.



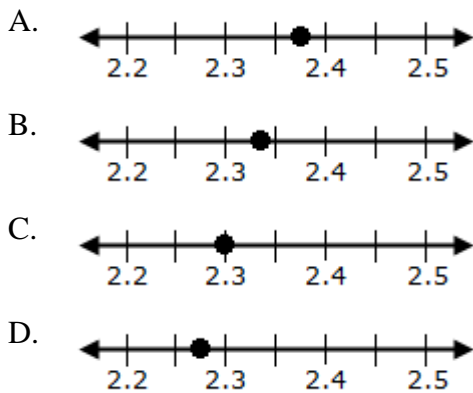
Write an equation to represent the money the grocery store charges to the number of gallons of milk sold. Let m represent the money made, and let g represent the number of gallons sold.

Directions: Answer the following question(s).

- 10 The Vance family is saving money to buy a new car that costs \$12,000. They plan to save \$715 per month (m), and they have already saved \$645. Which of the following inequalities shows the number of months (m) the Vance family could save in order to buy the new car? Select *all* that apply.
- A. $715m \geq 11,355$
 - B. $12,645 \geq 715m$
 - C. $715m \geq 11,355$
 - D. $12,000 \geq 715m + 645$

- 11 Joseph is buying tomato seed packets and cucumber seed packets at the store. He plans to buy 7 seed packets of *each* type of plant. Cucumber seed packets cost \$1.89 each. Joseph spends a total of \$23.24 on all the seed packets. Which of the following equations can be used to find how much each tomato seed packet (t) costs? Select *all* that apply.
- A. $23.24 = 1.89(7) + t$
 - B. $7(1.89) + 7t = 23.24$
 - C. $7t = 10.00$
 - D. $23.24 - 13.23 = 7t$

- 12 Which number line below correctly plots $2\frac{3}{8}$?

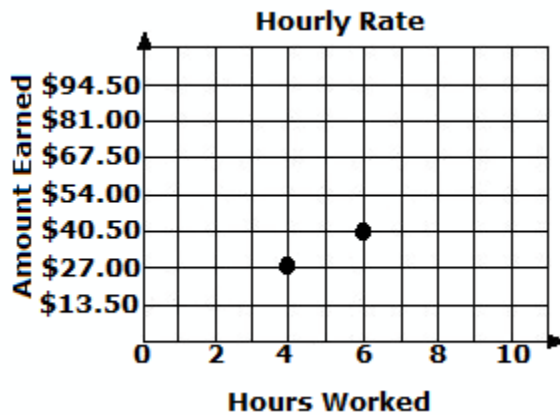


- 13 The concession stand at the football stadium sells bags of popcorn. Complete the table showing a proportional relationship between the number of bags sold and the amount charged by the concession stand.

Number of Bags Sold	Amount Charged
0	\$0
3	\$11.25
<input type="text"/>	\$30.00
14	\$ <input type="text"/>

Directions: Answer the following question(s).

- 14 Emily works as a babysitter and is paid a constant rate. Emily's newest employer gave her this graph to show her what her hourly rate would be.



Emily incorrectly calculated that her hourly rate would be \$5.75. Enter the correct hourly rate Emily will earn.

\$

- 15 Select the value of $\left(\frac{1}{2}\right)^4$.

- A. $\frac{5}{6}$
- B. $\frac{4}{8}$
- C. $\frac{1}{8}$
- D. $\frac{1}{16}$

- 16 Evelyn has two six-sided dice, each numbered one through six. Evelyn rolls each die one time. What is the probability that Evelyn rolls at least one three? Enter your answer as a fraction.

Directions: Answer the following question(s).

17 Select *all* expressions equivalent to $-90x + 60$.

- A. $-30(-3x + 2)$
- B. $30(-3x + 2)$
- C. $10(-9x + 6)$
- D. $-10(9x - 6)$
- E. $-10(9x + 6)$

18 Select *all* tables that represent a proportional relationship between x and y .

A.

x	-2	0	3	5
y	-6	0	9	15

B.

x	0	1	2	3
y	4	5	6	7

C.

x	-8	-6	-4	-2
y	-9	-7	-5	-3

D.

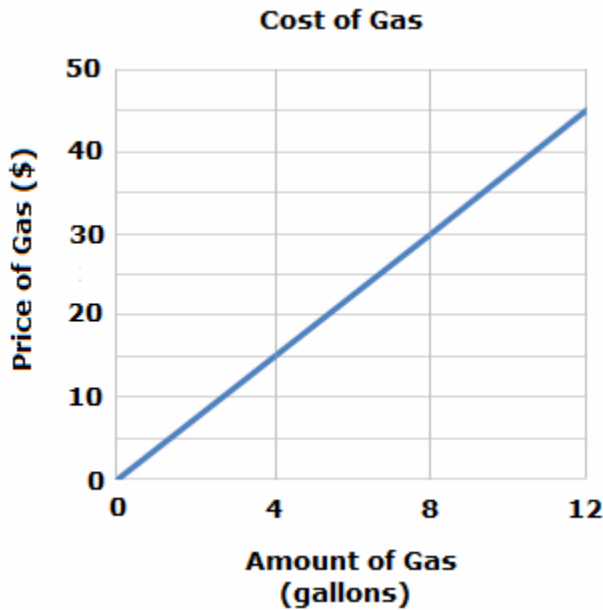
x	2	6	7	10
y	8	24	28	40

E.

x	0	5	10	15
y	10	15	20	25

Directions: Answer the following question(s).

- 19 The following graph shows the proportional relationship between the price of gas (\$) and the amount of gas (gallons).



Raul put 20 gallons of gas in his car. How much did Raul spend on gas?

\$

- 20 Mrs. Williams teaches preschool. At snack time on Monday, Mrs. Williams used $\frac{2}{3}$ of a bottle of juice to give 12 students each an equal amount of juice. On Tuesday, Mrs. Williams gave juice to 21 students. If the serving size of juice was the same as Monday, how many bottles of juice did Mrs. Williams use on Tuesday? Write your answer as a mixed number.

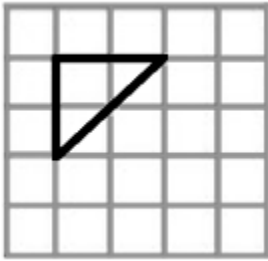
bottles

- 21 Charlotte earns $2\frac{1}{2}$ minutes of playing video games for every 5 math homework problems she completes. Tonight's homework has a total of 24 math problems. What is the *most* time she will be able to play video games tonight?

minutes

Directions: Answer the following question(s).

22



A scale factor of 5 was applied to this figure. What would be the new length of the height and width of the triangle?

units

23

Select the expression equivalent to $(-18x - 12) - (-13x + 17)$.

- A. $31x - 29$
- B. $-5x - 29$
- C. $-5x + 5$
- D. $5x + 5$

24

Select the expression that is equal to $(9x + 3) - (5x - 7)$.

- A. $14x - 4$
- B. $14x + 10$
- C. $4x - 4$
- D. $4x + 10$

25

Ursula's grandfather gave her \$20 to spend on new songs and games for her phone. Ursula has already spent \$4.50 on new songs. If each game costs \$1.75, how many games can Ursula buy without spending more than her grandfather gave her? Use the following inequality to solve the problem.

$$20 \geq 4.50 + 1.75x$$

- A. 8
- B. 9
- C. 13
- D. 14

Directions: Answer the following question(s).

- 26 Marco's mom has sent him to the store to buy apples and oranges. She has given Marco instructions to buy 4 pounds of apples and as many pounds of oranges as possible. He also has to spend exactly \$9.11. If one pound of apples costs \$1.29 and one pound of oranges costs \$0.79, how many pounds of oranges will Marco be able to buy? Use the equation below to find your answer.

$$1.29(4) + 0.79x = 9.11$$

pounds of oranges

- 27 Which of the following is equivalent to $3(y - 1 + 2y)$?

- A. $3y - 9$
 B. $6y - 3$
 C. $9y - 3$
 D. $3y - 3$

- 28 Select *all* tables that represent a proportional relationship between the number of pizzas ordered and the total cost.

A.

Number of Pizzas Ordered	Total Cost
1	\$10.00
2	\$20.00
3	\$28.00
4	\$36.00

B.

Number of Pizzas Ordered	Total Cost
1	\$8.00
2	\$16.00
3	\$24.00
4	\$32.00

C.

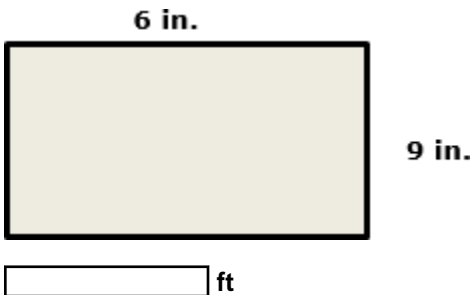
Number of Pizzas Ordered	Total Cost
2	\$12.00
4	\$24.00
6	\$36.00
8	\$48.00

D.

Number of Pizzas Ordered	Total Cost
3	\$9.00
5	\$25.00
7	\$49.00
9	\$81.00

Directions: Answer the following question(s).

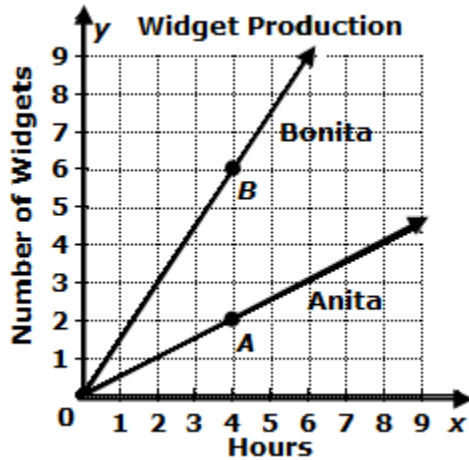
- 29 In September, Louise planted a tree. Every month, the tree Louise planted grew 2 inches. If Louise plotted the tree's growth with the month on the x -axis and growth on the y -axis, what would the constant of proportionality of the line be?
- A. $\frac{1}{2}$
- B. 1
- C. 2
- D. 4
- 30 The school store sells 2 pencils for 25 cents. If this relationship is graphed with the number of pencils on the x -axis and the cost on the y -axis, what is the constant of proportionality of the graph in cents per pencil?
- A. 12.5
- B. 17.5
- C. 25.0
- D. 50.0
- 31 Adam made a scale drawing of the vegetable garden he is planning and it is shown below. He wants to put fencing around the garden. Using a scale of 1 inch = 2.5 feet, enter the perimeter, in feet, of the vegetable garden.



- 32 The lowest point in the United States is the Badwater Basin in Death Valley, California. The Badwater Basin has an elevation of 282 feet below sea level. The highest point in the United States is Mount McKinley in Alaska. Mount McKinley has an elevation of 20,326 feet above sea level.
- Select *all* of the statements below which are true.
- A. The expression $20,326 - 282$ can be used to find the difference in elevations between Mount McKinley and the Badwater Basin.
- B. The expression $|-282 - 20,326|$ can be used to find the difference in elevations between Mount McKinley and the Badwater Basin.
- C. The elevation for the Badwater Basin can be represented by the rational number -282 .
- D. The difference in elevation between Mount McKinley and the Badwater Basin is 20,608 feet.
- E. The difference in elevation between Mount McKinley and the Badwater Basin is 20,044 feet.

Directions: Answer the following question(s).

- 33 Anita and Bonita work at a widget factory. The graph below shows the number of widgets each person can produce per hour.

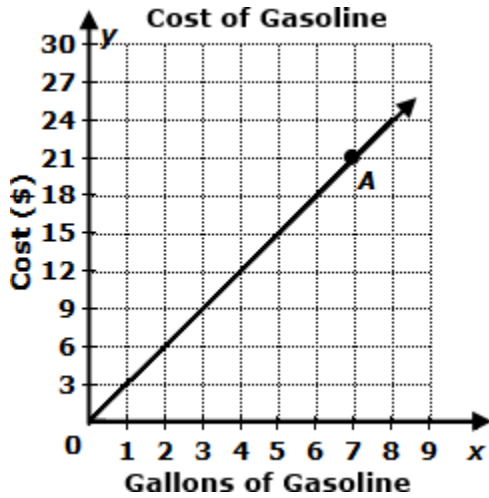


Select *all* of the statements which are correct.

- A. Bonita produces more widgets per hour than Anita.
- B. Point A shows that it took Anita 4 hours to make 2 widgets.
- C. Point B shows that it took Bonita 6 hours to make 4 widgets.
- D. Bonita can make 1.5 widgets in 1 hour.
- E. After 6 hours, Bonita makes 6 times as many widgets as Anita.

Directions: Answer the following question(s).

34 The graph below shows the cost, in dollars, of gasoline per gallon of gas.



Select *all* of the statements which are correct.

- A. The cost of one gallon of gas is \$3.
- B. Point A on the graph represents the cost of 21 gallons of gas.
- C. Point (0, 0) on the graph means no gallons of gas were purchased.
- D. The cost of gas increases by \$1 for each gallon purchased.
- E. If 9 gallons of gas were purchased, the total cost would be \$27.

35 Tommy wants to make a model of a building in his city. The actual building is 900 feet tall. He wants to use a scale of 3.5 in. = 225 ft. Enter the height of the model.

in.

36 Here are the measurements for a triangle. What kind of triangle will this be?

Sides	Angles
4 cm	35°
6 cm	110°
4 cm	35°

- A. an obtuse scalene triangle
- B. an acute equilateral triangle
- C. an obtuse isosceles triangle
- D. an acute isosceles triangle

Directions: Answer the following question(s).

37 Select *all* values equal to $\frac{1}{6}$.

A. $\frac{-1}{-6}$

B. $\frac{-1}{6}$

C. $-\left(\frac{-1}{6}\right)$

D. $\frac{1}{-6}$

E. $-\left(\frac{1}{-6}\right)$

38 The teacher spent $\frac{1}{8}$ of the class period reviewing the answers to a worksheet. The class period was

$1\frac{1}{2}$ hours in length. How many *minutes* did the teacher spend reviewing the worksheet? Enter your response as a decimal.

minutes

39 Solve and express your answer in decimal form rounded to the nearest hundredth.

$$-3.35 \div \frac{7}{8} = \text{$$

40 Jessica went shopping and bought a pair of jeans that were on sale for 25% off the original price of \$23.98. A 6% tax was also added on to the sale price. Enter the total amount that Jessica spent on the jeans. Round your answer to the nearest cent, if necessary.

\$

41 Elijah bought $3\frac{3}{4}$ pounds of ground hamburger meat for \$11.00. Enter the price per pound of the ground hamburger meat. Round your answer to the nearest cent, if necessary.

\$

Directions: Answer the following question(s).

- 42 The hardware store is having a 15% off sale on lawn mowers this weekend. If x is the original price of a lawn mower, what will be the final sales price, excluding tax? Select *two* that apply.
- A. $0.15 + x$
B. $x - 0.15$
C. $0.15x$
D. $x - 0.15x$
E. $x(1.00 - 0.15)$
- 43 Out of the 32 students in Mr. Martin's class, 18 are boys. If this ratio is proportional to the ratio of students in the school and the number of boys in the school, which of the following proportions could be used to find the number of students in the school? It is given that there are 468 boys in the school.
- A. $\frac{18}{32} = \frac{s}{468}$
B. $\frac{32}{18} = \frac{s}{468}$
C. $\frac{468}{32} = \frac{s}{18}$
D. $\frac{32}{s} = \frac{18}{468}$
- 44 Determine which of these statements is *sometimes* true.
1. Supplementary angles add up to 180° .
 2. If two lines intersect, one pair of vertical angles is complementary.
 3. If the measure of an angle is represented by x , then the measure of its complement is represented by $90 - x$.

For the statement that you chose as "sometimes true," provide one example of when the statement is true and one example of when the statement is not true. Your examples should be a diagram with the angle measurements labeled.