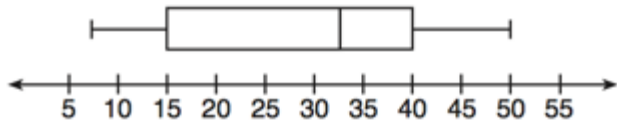


## Problem Set 15

1. The box-and-whisker plot below represents the ages of 12 people.



What percent of these people are age 15 or older?

1. 25
  2. 35
  3. 75
  4. 85
2. A line segment has endpoints (4,7) and (1,11). What is the length of the segment?
1. 5
  2. 7
  3. 16
  4. 25
3. In  $\triangle FGH$ ,  $m \angle F = 42$  and an exterior angle at vertex H has a measure of 104. What is  $m \angle G$ ?
1. 34
  2. 62
  3. 76
  4. 146
4. Mr. Stanton asked his students to write an algebraic expression on a piece of paper. He chose four students to go to the board and write their expression.

Robert wrote:  $4(2x + 5) \geq 17$

Meredith wrote:  $3y - 7 + 11z$

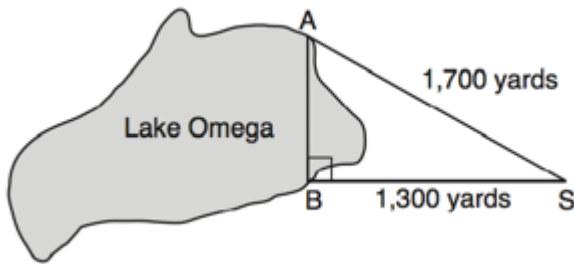
Steven wrote:  $9w + 2 = 20$

Cynthia wrote:  $8 + 10 - 4 = 14$

Which student wrote an algebraic expression?

1. Robert
2. Meredith
3. Steven
4. Cynthia

5. Campsite A and campsite B are located directly opposite each other on the shores of Lake Omega, as shown in the diagram below. The two campsites form a right triangle with Sam's position, S. The distance from campsite B to Sam's position is 1,300 yards, and campsite A is 1,700 yards from his position.



What is the distance from campsite A to campsite B, to the nearest yard?

1. 1,095
  2. 1,096
  3. 2,140
  4. 2,141
6. Gabriella has 20 quarters, 15 dimes, 7 nickels, and 8 pennies in a jar. After taking 6 quarters out of the jar, what will be the probability of Gabriella randomly selecting a quarter from the coins left in the jar?
1.  $\frac{14}{44}$
  2.  $\frac{30}{44}$
  3.  $\frac{14}{50}$
  4.  $\frac{20}{50}$
7. Which set of numbers does not represent the sides of a right triangle?
1. {6, 8, 10}
  2. {8, 15, 17}
  3. {8, 24, 25}
  4. {15, 36, 39}
8. When  $\triangle ABC$  is dilated by a scale factor of 2, its image is  $\triangle A'B'C'$ . Which statement is true?
1.  $\overline{AC} \cong \overline{A'C'}$
  2.  $\angle A \cong \angle A'$
  3. perimeter of  $\triangle ABC$  = perimeter of  $\triangle A'B'C'$
  4.  $2(\text{area of } \triangle ABC) = \text{area of } \triangle A'B'C'$

9. Which algebraic expression represents 15 less than x divided by 9?

1.  $\frac{x}{9} - 15$
2.  $9x - 15$
3.  $15 - \frac{x}{9}$
4.  $15 - 9x$

10. Which equation is an example of the use of the associative property of addition?

1.  $x + 7 = 7 + x$
2.  $3(x + y) = 3x + 3y$
3.  $(x + y) + 3 = x + (y + 3)$
4.  $3 + (x + y) = (x + y) + 3$

11. What is  $\frac{6}{4a} - \frac{2}{3a}$  expressed in simplest form?

1.  $\frac{4}{a}$
2.  $\frac{5}{6a}$
3.  $\frac{8}{7a}$
4.  $\frac{10}{12a}$

12. The length of the hypotenuse of a right triangle is 34 inches and the length of one of its legs is 16 inches. What is the length, in inches, of the other leg of this right triangle?

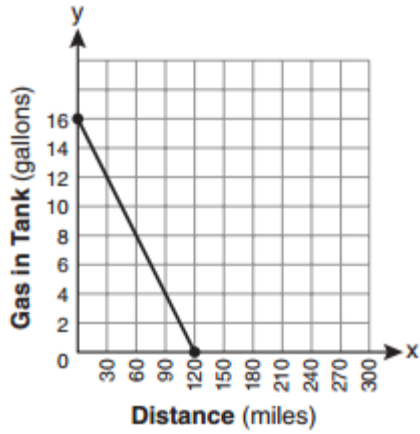
1. 16
2. 18
3. 25
4. 30

13. What is the product of 12 and  $4.2 \times 10^6$  expressed in scientific notation?

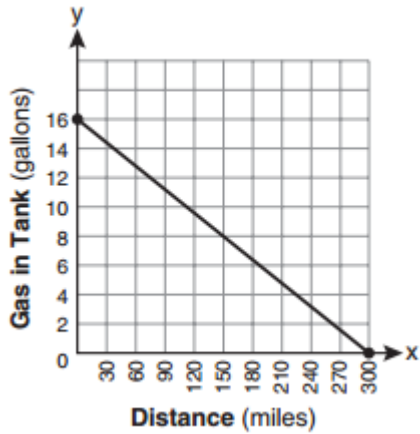
1.  $50.4 \times 10^6$
2.  $50.4 \times 10^7$
3.  $5.04 \times 10^6$
4.  $5.04 \times 10^7$

14. The gas tank in a car holds a total of 16 gallons of gas. The car travels 75 miles on 4 gallons of gas. If the gas tank is full at the beginning of a trip, which graph represents the rate of change in the amount of gas in the tank?

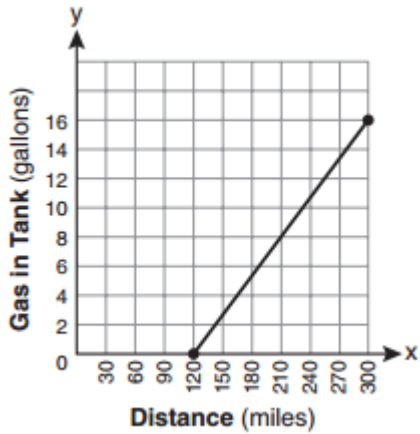
1.



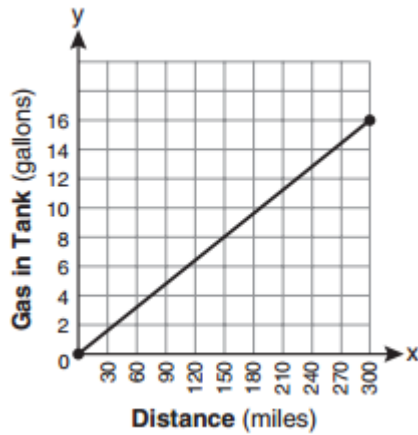
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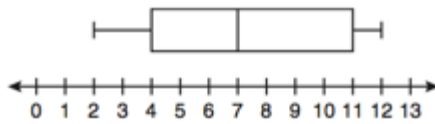
3.



4.



15. Based on the box-and-whisker plot below, which statement is false?



1. The median is 7.
2. The range is 12.
3. The first quartile is 4.
4. The third quartile is 11.

16. Which statement is true about the data set 3, 4, 5, 6, 7, 7, 10?

1. mean = mode
2. mean > mode
3. mean = median
4. mean < median

17. If the expression  $(2y^a)^4$  is equivalent to  $16y^8$ , what is the value of  $a$ ?

1. 12
2. 2
3. 32
4. 4

18. What is the additive inverse of the expression  $a - b$ ?

1.  $a + b$
2.  $a - b$
3.  $-a + b$
4.  $-a - b$