

Date Completed: _____
Mentor Initials: _____

A mentor can change everything.



Strategies (Basic)

1. Which of the following expressions will produce the largest result when substituted for the blank in the expression $187 __ (-.5)$?
 - A. Plus
 - B. Minus
 - C. Divided by
 - D. Multiplied by
 - E. Averaged with
2. Which of the following (x, y) pairs is a solution to the equations $x - y = 7$ and $4x - y = 46$?
 - A. (6,7)
 - B. (6,13)
 - C. (7,14)
 - D. (13,6)
 - E. (14,7)
3. Heading into the last test of the semester, Julian had scored 78, 91, 64, and 95 on the previous four exams. After the last test, Julian had an overall test average somewhere in the B range (80% – 89%) for the semester. Which of the following could NOT have been the score of his final exam?
 - A. 68
 - B. 72
 - C. 88
 - D. 95
 - E. 100
4. If a is an odd integer and b is an even integer, then which of the following produces an odd integer?
 - A. $2a + b$
 - B. $2a - b$
 - C. ab
 - D. $2ab$
 - E. $3a - b$

5. A line in the standard (x, y) coordinate plane passes through points $(-3, 1)$ and $(8, -6)$. The slope of the line is:
- A. Positive
 - B. Negative
 - C. Zero
 - D. Undefined
 - E. Cannot be determined by the given information
6. Stevens High School is voting for their student body president. 500 seniors voted, 298 of whom voted for the eventual winner. Suppose that the election is indicative of how the entire school of 2,700 students would vote. Which of the following values is closest to how many of the 2,700 students would have voted for the winner?
- A. 783
 - B. 1,505
 - C. 1,620
 - D. 1,783
 - E. 1,980
7. Let $a = 5b - c + 8$. What happens to the value of a if the values of b and c both increase by 5?
- A. It increases by 5
 - B. It increases by 10
 - C. It increases by 15
 - D. It increases by 20
 - E. Cannot be determined from the given information
8. A function $f(x)$ is defined as $f(x) = 4^{5x-7}$. What is x when $f(x) = 64$?
- A. 2
 - B. 3
 - C. 4
 - D. 5
 - E. 10
9. The list of numbers 88, 76, 23, x , y , and 51 has a median of 49. The mode of the list is 23. To the nearest whole number, what is the mean of the list?
- A. 23
 - B. 47
 - C. 49
 - D. 51
 - E. 71

10. Which of the following represents the positive number h decreased by 12%?
- A. $\frac{h}{88}$
 - B. $0.88h$
 - C. $.12h$
 - D. $1.12h$
 - E. $12h$
11. The polynomial $81x^2 + 27x - 10$ is equivalent to the product of $(9x + 5)$ and which of the following binomials?
- A. $(-9x - 9)$
 - B. $(-9x - 2)$
 - C. $(9x + 2)$
 - D. $(9x - 2)$
 - E. $(9x - 9)$
12. A line contains the points $A, B, C,$ and D . Point D is between points A and B . Point C is between points D and B . Which of the following inequalities must be true about the lengths of these segments?
- A. $BC < CD$
 - B. $CD < BC$
 - C. $AC < BC$
 - D. $AB < DB$
 - E. $DB < AB$
13. In the standard (x, y) coordinate plane, what is the midpoint of the line segment that has endpoints $(5, 10)$ and $(1, -12)$?
- A. $(-1, 3)$
 - B. $(-1, -3)$
 - C. $(\frac{11}{2}, -\frac{12}{5})$
 - D. $(3, 11)$
 - E. $(3, -1)$
14. A bag contains a variety of coins. On 5 consecutive draws with replacement, a quarter is drawn from the bag each time. Which of the following statements must be true about the coins in the bag?
- A. There is at least one quarter in the bag.
 - B. There are only three quarters in the bag.
 - C. There must be at least three quarters in the bag.
 - D. Quarters are the most prevalent coin in the bag.
 - E. All the coins are quarters.

15. In a right triangle, one angle measures x° , and $\sin x^\circ = \frac{3}{5}$. What is $\cos(90 - x^\circ)$?

A. $\frac{1}{5}$

B. $\frac{2}{5}$

C. $\frac{3}{5}$

D. $\frac{3}{4}$

E. $\frac{4}{5}$