

1. A cable provider charges each customer \$120 for installation, plus \$25 per month for service. The competitor charges each customer \$60 for installation, plus \$35 per month for service. After how many months will a customer from the first cable provider pay the same amount as a customer from competitor?

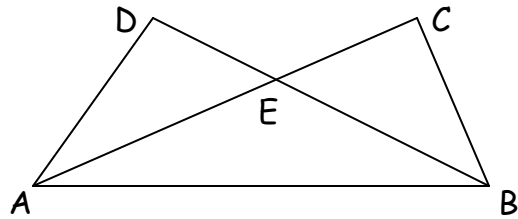
- A) 3 B) 6 C) 10 D) 18 E) 30

2. The sum of the numbers x and y is 11. Their difference is 5. What is the value of xy ?

- A) 3 B) 5 C) 8 D) 24 E) 55

3. In the figure below, \overline{AD} is perpendicular to \overline{BD} , \overline{AC} is perpendicular to \overline{BC} , and $\overline{AD} \cong \overline{BC}$. Which of the following is not necessarily true?

- A) $\overline{AC} \cong \overline{BD}$ B) $\overline{AD} \cong \overline{AE}$
 C) $\overline{AE} \cong \overline{BE}$ D) $\angle DAB \cong \angle CBA$
 E) $\angle EAB \cong \angle EBA$

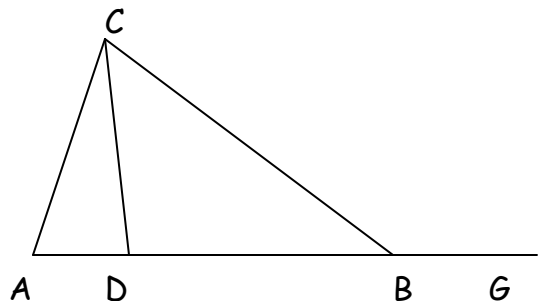


4. CDs were discounted 23% off the marked price. Which of the following is an expression for the discounted price on a marked price of p dollars?

- A) $p - 0.23p$ B) $p - 0.23$ C) $p - 23p$ D) $p - 23$ E) $0.23p$

5. In the figure below, $A, D, B,$ and G are collinear. If $\angle CAD$ measures 76° , $\angle BCD$ measures 47° , and $\angle CBG$ measures 140° , what is the degree measure of $\angle ACD$?

- A) 12° B) 14° C) 17°
 D) 36° E) 43°

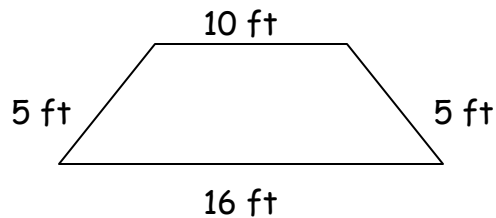


10. A bag contains 6 red marbles, 5 yellow marbles, and 7 green marbles. How many additional red marbles must be added to the 18 marbles already in the bag so that the probability of randomly drawing a red marble is $\frac{3}{5}$?

- A) 12 B) 16 C) 18 D) 24 E) 36

11. The parallel sides of the isosceles trapezoid below are 10 feet long and 16 feet long, respectively. What is the distance in feet between these two sides?

- A) 3 B) 4
C) 5 D) 10
E) 16



12. In the standard (x,y) coordinate plane, the midpoint of \overline{AB} is $(4,-3)$ and A is located at $(1,-5)$. If (x,y) are the coordinates of B, what is the value of $x + y$?

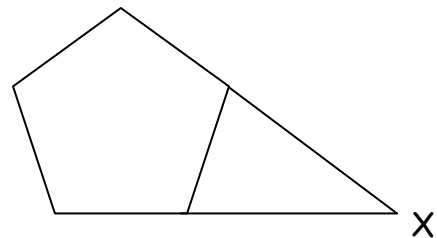
- A) 19 B) 8 C) 6 D) -1.5 E) -3

13. For all x in the domain of the function $\frac{x+1}{x^3-x}$, this function is equivalent to:

- A) $\frac{1}{x^2} - \frac{1}{x^3}$ B) $\frac{1}{x^3} - \frac{1}{x}$ C) $\frac{1}{x^2-1}$ D) $\frac{1}{x^2-x}$ E) $\frac{1}{x^3}$

14. In the figure below, two nonadjacent sides of a regular pentagon are extended until they meet at a point X. What is the measure of $\angle X$?

- A) 18° B) 30° C) 36°
D) 45° E) 72°



15. A number is increased by 25% and the resulting number is then decreased by 20%. The final number is what percent of the original number?

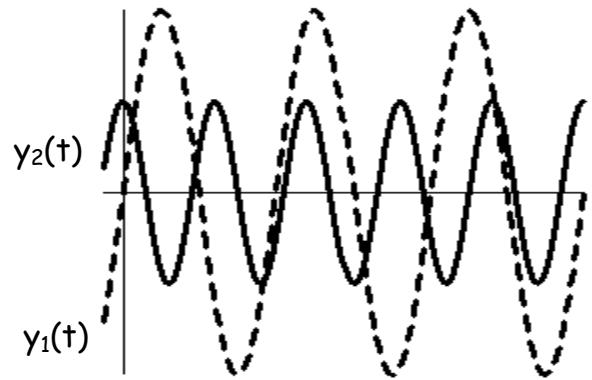
- A) 90% B) 95% C) 100% D) 105% E) 120%

16. Which of the following is true for all consecutive integers m and n such that $m < n$?

- A) m is odd B) n is odd C) $n - m$ is even
 D) $n^2 - m^2$ is odd E) $m^2 + n^2$ is even

17. The equations of two graphs shown below are $y_1(t) = a_1 \sin(b_1 t)$ and $y_2(t) = a_2 \cos(b_2 t)$, where the constants b_1 and b_2 are positive real numbers. Which of the following statements is true of the constants a_1 and a_2 ?

- A) $0 < a_1 < a_2$ B) $0 < a_2 < a_1$
 C) $a_1 < 0 < a_2$ D) $a_1 < a_2 < 0$
 E) $a_2 < a_1 < 0$



18. Consider the function $f(x) = \sqrt{x}$ and $g(x) = 7x + b$. In the standard (x,y) coordinate plane, $y = f(g(x))$ passes through $(4,6)$. What is the value of b ?

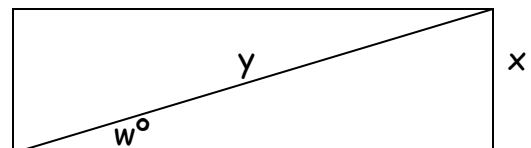
- A) 8 B) -8 C) -25 D) -26 E) $4 - 7\sqrt{6}$

19. What is the real value of x in the equation $\log_2 24 - \log_2 3 = \log_5 x$?

- A) 3 B) 21 C) 72 D) 125 E) 243

20. Which of the following trigonometric equations is valid for the side measurement x inches, diagonal measurement y inches, and angle measurement w° in the rectangle below?

- A) $\cos w^\circ = \frac{x}{y}$ B) $\cot w^\circ = \frac{x}{y}$ C) $\sec w^\circ = \frac{x}{y}$
 D) $\sin w^\circ = \frac{x}{y}$ E) $\tan w^\circ = \frac{x}{y}$



Geometry

ACT Prep Worksheet

ANSWERS

- 1. B
- 2. D
- 3. B
- 4. A
- 5. C
- 6. C
- 7. C
- 8. B
- 9. A
- 10. A

- 11. B
- 12. C
- 13. D
- 14. C
- 15. C
- 16. D
- 17. B
- 18. A
- 19. D
- 20. D