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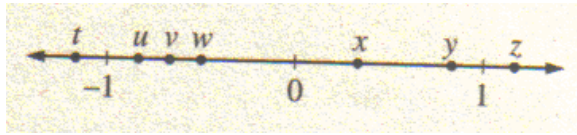
Online Homework

Focused Exercises for Math SAT

Skill Set 15: Absolute Value

Many of the problems in this exercise set came from The College Board, writers of the SAT exam.

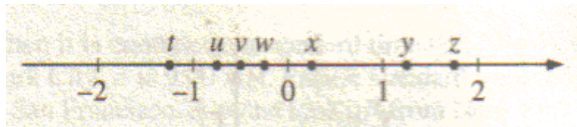
1.



On the number line above, which of the following corresponds to $|u - w|$?

- (A) t
- (B) v
- (C) x
- (D) y
- (E) z

2.



On the number line above, t , u , v , w , x , y , and z are coordinates of the indicated points. Which of the following is closest in value to $|u + v|$?

- (A) t
- (B) w
- (C) x
- (D) y
- (E) z

3.

$$|m - 3| = 5$$
$$|k + 7| = 15$$

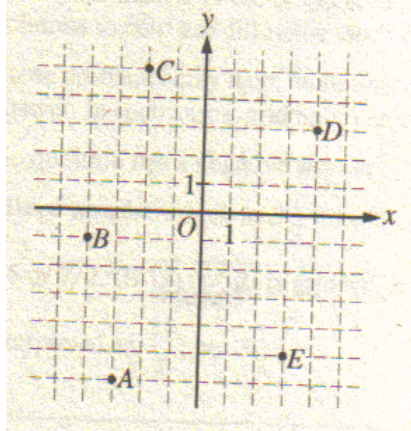
In the equations above, $m < 0$ and $k < 0$. What is the value of $m - k$?

- (A) -24
- (B) -14
- (C) 8
- (D) 16
- (E) 20

4. If $|2 - x| < 3$, which of the following is a possible value of x ?

- (A) 4
- (B) 5
- (C) 6
- (D) 7
- (E) 8

5.



Which of the lettered points in the figure above has coordinates (x, y) such that $|x| - |y| = 3$?

- (A) *A*
- (B) *B*
- (C) *C*
- (D) *D*
- (E) *E*

6. $|4x - 7| = 5$
 $|3 - 8x| = 1$

What value of x satisfies both of the equations above?

7. On a number line, x represents a number that is within 2 units of 12. Which of the following represents this relationship?

- (A) $|x + 2| < 12$
- (B) $|x + 12| < 2$
- (C) $|x - 2| < 12$
- (D) $|x - 12| < 2$
- (E) $|12 - 2| < x$

8. At a bottling company, machine *A* fills a bottle with spring water and machine *B* accepts the bottle only if the number of fluid ounces is between

$11\frac{7}{8}$ and $12\frac{1}{8}$. If machine *B* accepts a bottle containing n fluid ounces,

which of the following describes all possible values of n ?

(A) $|n - 12| = \frac{1}{8}$

(B) $|n + 12| = \frac{1}{8}$

(C) $|n - 12| < \frac{1}{8}$

(D) $|n + 12| < \frac{1}{8}$

(E) $|n - 12| > \frac{1}{8}$

9. A regulation for riding a certain amusement park ride requires that a child be between 30 inches and 50 inches tall. Which of the following inequalities can be used to determine whether or not a child's height h satisfies the regulation for this ride?

(A) $|h - 10| < 50$

(B) $|h - 20| < 40$

(C) $|h - 30| < 20$

(D) $|h - 40| < 10$

(E) $|h - 45| < 5$

10. How many integers n satisfy the inequality $|n + 1| < 4$?

(A) One

(B) Two

(C) Four

(D) Seven

(E) Eight

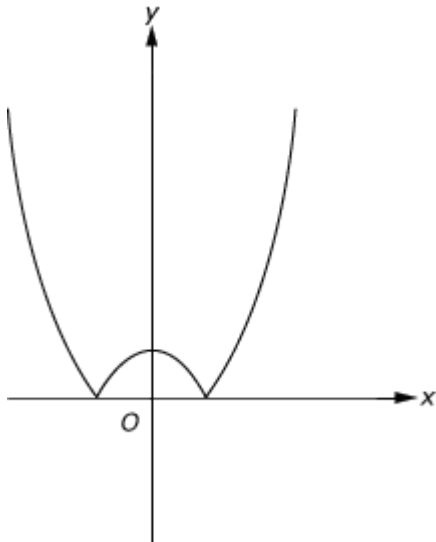
11. The weights of 10 bags of apples range from 2.75 pounds to 3.15 pounds. If w is the weight, in pounds, of one of these bags, which of the following must be true?

- (A) $|w - 2.75| \geq 0.2$
- (B) $|w - 2.95| \leq 0.2$
- (C) $|w + 2.95| \geq 0.2$
- (D) $|w - 0.2| \leq 2.75$
- (E) $|w - 10| \geq 2.95$

12. $|10 - k| = 3$
 $|k - 5| = 8$

What is the value of k that satisfies both equations above?

- 13.



Which of the following could be the equation of the function graphed in the xy -plane above?

- (A) $y = (-x)^2 + 1$
- (B) $y = -x^2 + 1$
- (C) $y = |x^2 + 1|$
- (D) $y = |x^2 - 1|$
- (E) $y = |(x - 1)^2|$