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Online Homework

Focused Exercises for Math SAT

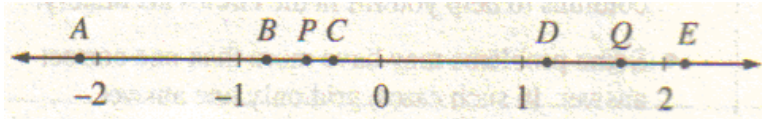
Skill Set 16: Number Lines

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

1. If $x < y$, which of the following must be true?

- (A) $x^2 < y^2$
- (B) $-y < -x$
- (C) $x^2 < xy$
- (D) $xy < y^2$
- (E) $2x < y$

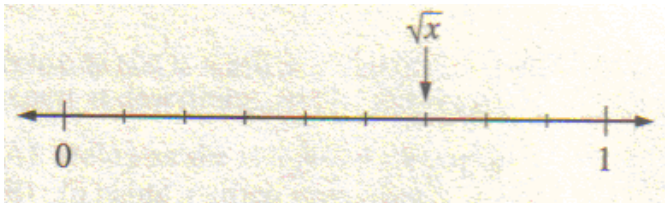
2.



Which of the lettered points on the number line above could represent the result when the coordinate of point P is multiplied by the coordinate of point Q ?

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

3.

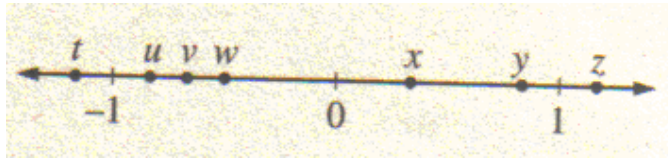


On the number line above, there are 9 equal intervals between 0 and 1. What is the value of x ?

4. If $0 < x < 1$, which of the following statements must be true?

- I. $x^2 > x^3$
 - II. $x > \frac{x}{2}$
 - III. $x > x^3$
- (A) I only
 - (B) II only
 - (C) I and II only
 - (D) I and III only
 - (E) I, II, and III

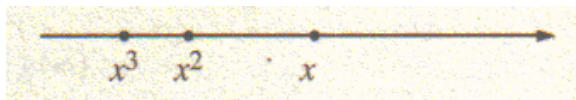
5.



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

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

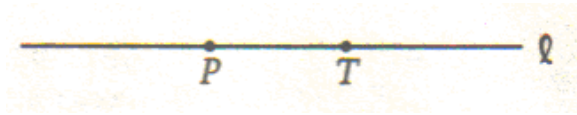
6.



If x , x^2 and x^3 lie on a number line in the order shown above, which of the following could be the value of x ?

- (A) -2
 - (B) $-\frac{1}{2}$
 - (C) $\frac{3}{4}$
 - (D) 1
 - (E) $\frac{3}{2}$
7. Alice and Corinne stand back-to-back. They each take 10 steps in opposite directions away from each other and stop. Alice then turns around, walks toward Corinne, and reaches her in 17 steps. The length of one of Alice's steps is how many times the length of one of Corinne's steps? (All of Alice's and Corinne's steps are the same length.)
8. If $x^2 > x^4$ and $x > 0$, what is one possible value for x ?

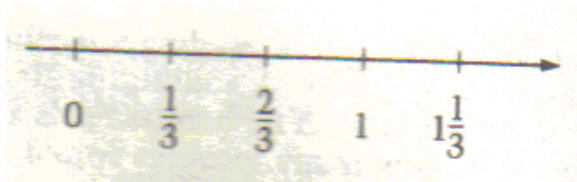
9.



In the figure above, points P and T lie on line l . How many different points on line l are twice as far from point T as from point P ?

- (A) None
- (B) One
- (C) Two
- (D) Four
- (E) More than four

10.

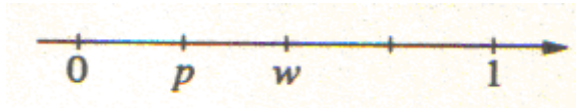


Marks are equally spaced on a number line as shown above. How many marks would there be on this number line between the marks at 13 and 16?

- (A) 3
- (B) 6
- (C) 7
- (D) 8
- (E) 9

11. On a number line, if point P has coordinate -2 and point Q has coordinate 10 , what is the coordinate of the point that is located $\frac{1}{4}$ of the way from P to Q ?
- (A) $-1\frac{1}{2}$
- (B) -1
- (C) $-\frac{1}{2}$
- (D) 1
- (E) $2\frac{1}{2}$
12. On a number line, point A has coordinate -3 and point B has coordinate 12 . Point P is $\frac{2}{3}$ of the way from A to B . What is the coordinate of point P ?
- (A) -1
- (B) 2
- (C) 6
- (D) 7
- (E) 10
13. Karen's salary is greater than Margot's but less than Henrietta's. If k , m , and h represent each of their salaries, respectively, which of the following is true?
- (A) $h < k < m$
- (B) $k < h < m$
- (C) $k < m < h$
- (D) $m < h < k$
- (E) $m < k < h$

14.



On the number line above, the tick marks are equally spaced. What is the value of $w - p$?

(A) $\frac{3}{4}$

(B) $\frac{2}{3}$

(C) $\frac{1}{2}$

(D) $\frac{1}{3}$

(E) $\frac{1}{4}$

15. If $a > b > 0$, which of the following is greater than $\frac{a}{b}$?

(A) 1

(B) $\frac{b}{a}$

(C) $\frac{1}{\frac{a}{b}}$

(D) $\frac{a}{2b}$

(E) $\frac{2a}{b}$

16. If $0 < n < 1$, which of the following gives the correct ordering of \sqrt{n} , n and n^2 ?
- (A) $\sqrt{n} < n < n^2$
 - (B) $\sqrt{n} < n^2 < n$
 - (C) $n < \sqrt{n} < n^2$
 - (D) $n < n^2 < \sqrt{n}$
 - (E) $n^2 < n < \sqrt{n}$
17. If $0 < x < 1$ and $0 < y < 1$, which of the following must be true?
- (A) $xy > 0$
 - (B) $xy < 0$
 - (C) $\frac{x}{y} < 0$
 - (D) $x - y > 0$
 - (E) $x - y < 0$
18. What is the coordinate of the point on a number line that is exactly halfway between the points with coordinates 53 and 62 ?
19. If $2x < y < 0$, which of the following is greatest?
- (A) $-2x$
 - (B) $-(2x + y)$
 - (C) $2x$
 - (D) 0
 - (E) $-y$
20. If $0 \leq x \leq 8$ and $-1 \leq y \leq 3$, which of the following gives the set of all possible values of xy ?
- (A) $xy = 4$
 - (B) $0 \leq xy \leq 24$
 - (C) $-1 \leq xy \leq 11$
 - (D) $-1 \leq xy \leq 24$
 - (E) $-8 \leq xy \leq 24$