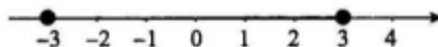


SAT Maths Sample Paper 3

1. Which of the following inequality represents the number line shown below?



- A. $|x| \geq -3$
- B. $|x| \geq 3$
- C. $|x| \leq -3$
- D. $|x| \leq 3$
2. If $|x - 4| > 6$, which of the following describes all the possible values of x ?
- A. $-2 < x < 10$
- B. $x < -10$ or $x > 2$
- C. $-10 < x < 2$
- D. $x < -2$ or $x > 10$
3. If $-2 < |x - 2| < 8$, which of the following describes all the possible values of x ?
- A. $-2 < x < 6$
- B. $x < -6$ or $x > 2$
- C. $-6 < x < 2$
- D. None of Above

4. If $-|2x - 3| > 1$, which of the following describes all the possible values of x ?

A. $-2 < x < 2$

B. $x < -3$ or $x > 2$

C. $x < -2$ or $x > 2$

D. None of Above

5. If $-\frac{|x + 3|}{|-2|} < 5$, which of the following describes all the possible values of x ?

A. $-7 < x < 7$

B. All real numbers

C. $-3 < x < 3$

D. None of Above

6. If $\frac{-|x+3|}{|-2|} < 5$, which of the following describes all the possible values of x ?

A. $-2 < x < 2$

B. $-\frac{1}{2} < x < 2$

C. $x < -2$ or $x > 2$

D. $-2 < x < \frac{1}{2}$

7. If $-2 \leq 5x + 2 \leq -6$, which of the following describes all the possible values of x ?

A. $-1 < x < \frac{1}{5}$

B. $-\frac{1}{5} < x < 1$

C. $x < -1$ or $x > \frac{1}{5}$

D. $x < -\frac{1}{5}$ or $x > 1$

8. For what value of x is $|x+2|+3=0$?

A. -2

B. 0

C. -5

D. No such value exists

9. For what value of x is $2 \leq x+2 \leq -6$?

A. -2

- B. 3
- C. 1
- D. No such value exists

10. For what value of x is $|x + 5| - 10 = 5$?

- A. -20
- B. 15
- C. 20
- D. -10

Answers

1. D Only $|x| \leq 3$ denotes the values $-3 \leq x \leq 3$.
2. D $|x - 4| > 6$ implies that either $x - 4 < -6$ or $x - 4 > 6$. Therefore, $x > 10$ or $x < -2$.
3. A $-2|x - 2| > -8$ implies that $|x - 2| < 4$, therefore $-4 < x - 2 < 4$, then $-2 < x < 6$.
4. D $-|2x - 3| > 1$ implies $|2x - 3| < -1$. As an absolute value must be positive, then there is no such x value.
5. B $\frac{-|x + 3|}{|-2|} < 5$ implies $\frac{|x + 3|}{2} > -5$, and note that $\frac{|x + 3|}{2}$ is always positive, thus the inequality is satisfied by all real numbers.
6. B $|4x - 3| < 5$ implies $-5 < 4x - 3 < 5$, thus $-2 < 4x < 8$ and then $-\frac{1}{2} < x < 2$.
7. A $-2|5x + 2| > -6$ implies $|5x + 2| < 3$. Thus $-3 < 5x + 2 < 3$, then $-1 <$

$$x < \frac{1}{5}.$$

8. D As $|x + 2| > 0$, therefore, there is no such x value can make $|x + 2| + 3 = 0$.

9. C $2|x + 2| - 6 = 0$ leads to $|x + 2| = 3$, therefore $x + 2 = \pm 3$, then $x = 1$ or $x = -5$.

10. A $|x + 5| - 10 = 5$ leads to $|x + 5| = 15$, therefore $x + 5 = \pm 15$, then $x = -20$ or $x = 10$.