

Absolute Value

- 1 Solve this inequality for y : $\frac{1}{2}|2 + y| > 6$
 A. $y > 10$ B. $y > 12$ C. $y > 10$ or $y < -14$
 D. $y > -14$ E. NOTA
2. Suppose $z = 1 + 3i$. What is $|z^6|$?
 A. 1 B. 64 C. 1000
 D. 4096 E. NOTA
- 3 Determine the value of $7k$ if $\begin{vmatrix} 3 & 2 & 7 \\ k & -1 & k \\ 0 & 1 & -4 \end{vmatrix} = -2k + 4$
 A. -4 B. $-\frac{4}{7}$ C. $\frac{4}{7}$
 D. 4 E. NOTA
- 4 Evaluate $\left| \begin{bmatrix} 1 & 2 \\ 2 & 1 \end{bmatrix}^{-1} \right|$
 A. -3 B. $-\frac{1}{3}$ C. $\frac{1}{3}$
 D. 3 E. NOTA
- 5 Evaluate $\begin{vmatrix} -2 & -3 & 1 \\ 7 & 4 & 0 \\ -3 & 2 & 3 \end{vmatrix}$
 A. 55 B. 60 C. 65
 D. 70 E. NOTA
- 6 Find the sum of the solutions to: $x^2 - |x| - 12 = 0$
 A. 1 B. -1 C. 0
 D. -7 E. NOTA
- 7 Solve. $6|y - 3| < 12$
 A. $y < 5$ B. $1 < y < 5$ C. $y < 5$ or $y > 1$
 D. $-\frac{3}{2} < y < \frac{5}{2}$ E. NOTA

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- 8 Find the coordinates of the point of intersection of the graphs of $y = |x + 10|$ and $y = |8 - x|$.
- A. $(-2, 10)$ B. $(-1, 9)$ C. $(1, 11)$
D. $(-5, 5)$ E. NOTA
- 9 Solve $|3x - 2| \geq 8 + x$
- A. $-5 \leq x \leq \frac{3}{2}$ B. $-\frac{3}{2} \leq x \leq \frac{3}{2}$ C. $-5 \leq x \leq 5$
D. $-\frac{3}{2} \leq x \leq 5$ E. NOTA
- 10 Solve for x , $|3x - 8| \leq 20$
- A. $x \leq \frac{28}{3}$ B. $x = \frac{28}{3}$ C. $-4 \leq x \leq \frac{28}{3}$
D. $-4 \geq x \geq \frac{28}{3}$ E. NOTA
- 11 If $|12x - 5| = 3 + |7x + 5|$, then determine the sum of all possible values of x .
- A. $\frac{13}{5}$ B. $\frac{232}{95}$ C. $\frac{241}{98}$
D. $\frac{256}{89}$ E. NOTA
- 12 If $|x| > 5$, then which of the following is a possible value of x ?
- A. 0 B. 3 C. -5
D. -2π E. NOTA
- 13 Find all solutions for $|3x - 4| = 1$
- A. $x = \frac{5}{3}$ or $x = -1$ B. $x = \frac{3}{5}$ or $x = 1$ C. $x = \frac{4}{3}$ or $x = -\frac{5}{3}$
D. $x = \frac{3}{4}$ or $x = \frac{4}{3}$ E. NOTA
- 14 Find all real values of x which satisfy $x + |x| = 0$
- A. $x \geq 0$ B. $x \leq 0$ C. $x > 0$
D. $x < 0$ E. NOTA

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- 15 Solve for x :
 $|2(6 - 2x) - 5| + 23 < 27$
- A. $-\frac{3}{4} < x < \frac{11}{4}$ B. $x < -\frac{11}{4}$ or $x > \frac{3}{4}$ C. $\frac{3}{4} < x < \frac{11}{4}$ D. $x < \frac{11}{4}$ or $x > \frac{3}{4}$ E. NOTA
- 16 If a and b are real numbers, then which of the following statements is true?
 A. $|a + b| = |a| + |b|$ B. $|a - b| = |a| - |b|$ C. $|ab| = |a| \cdot |b|$
 D. $-\frac{|a|}{|b|} = -\frac{a}{b}$ E. NOTA
- 17 If $2x - 4 < 0$ then which is equivalent to $|2x - 5|$?
 A. $5 - 2x$ B. $2x + 5$ C. $\sqrt{29}$
 D. $2x - 5$ E. NOTA
- 18 If $|5 - 2x| < 13$ has a solution set of $a < x < b$, then find the value of $4a - b$
 A. -25 B. -20 C. 32
 D. 40 E. NOTA
- 19 Solve: $|5x - 2| < 6$
 A. $x < -\frac{4}{5} \cup x > \frac{8}{5}$ B. $x < \frac{8}{5}$ C. $x > -\frac{4}{5}$
 D. $-\frac{4}{5} < x < \frac{8}{5}$ E. NOTA
- 20 Consider all tangents to the graph of the function $f(x) = \frac{x+10}{|x|+2}$. What is the sum of all the constant values in the equations of the tangents?
 A. 0 B. 1 C. 2
 D. 4 E. NOTA
- 21 Find the sum of the integral values for x in the solution to $\left| \frac{7-3x}{2} \right| \leq 4$
 A. -5 B. 0 C. 15
 D. Φ E. NOTA
- 22 What is the sum of the integral solutions of $|5 - 3x| < 10$?
 A. 0 B. 7 C. 9
 D. 13 E. NOTA
- 23 If $a - 5 = b$, what is the value of $|a - b| + |b - a|$?

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- A. 10
- D. -5

- B. 0
- E. NOTA

C. 5

24 Solve the following inequality of \mathfrak{R}

$$|2x^2 + 5x - 5| < 2$$

A. $\left(-\frac{7}{2}, 1\right)$

B. $\left(-3, \frac{1}{2}\right)$

C. $\left(-\frac{7}{2}, -3\right) \cup \left(\frac{1}{2}, 1\right)$

D. $(-\infty, -3) \cup \left(\frac{1}{2}, \infty\right)$

E. NOTA

Short Answer

25 Solve for x if $|x + 8| + |3x - 6| = 5$