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Questions:

Multiple Choice Question

1. If |x+2| $\leq$ 9, then x belongs to
   (a) $(-\infty, -7)$ (b) [-11, 7] (c) $(-\infty, -7) \cup (11, \infty)$ (d) (-11, 7)
2. Given that x, y and b are real numbers x < y, b > 0, then
   (a) xb < yb (b) xb > yb (c) xb $\leq$ yb (d) $\frac{x}{b} \geq \frac{y}{b}$
3. If $\frac{|x-2|}{x-2} \geq 0$, then x belongs to
   (a) $[2, \infty]$ (b) $(2, \infty)$ (c) $(-\infty, 2)$ (d) $(-2, \infty)$
4. The solution 5x-1<24 and 5x+1 > -24 is
   (a) (4,5) (b) (-5,-4) (c) (-5,5) (d) (-5,4)
5. The solution set of the following inequality |x-1| $\geq$ |x-3| is
   (a) [0, 2] (b) $[2, \infty)$ (c) (0, 2) (d) $(-\infty, 2)$
6. The value of $log_{\sqrt{2}}512$ is
   (a) 16 (b) 18 (c) 9 (d) 12
7. The value of $log_3 \frac{1}{81}$ is
   (a) -2 (b) -8 (c) -4 (d) -9
8. If $log_{\sqrt{x}}$ 0.25 = 4, then the value of x is
   (a) 0.5 (b) 2.5 (c) 1.5 (d) 1.25
9. The value of $\log_a b \log_b c \log_c a$ is
   (a) 2 (b) 1 (c) 3 (d) 4
10. If 3 is the logarithm of 343, then the base is
    (a) 5 (b) 7 (c) 6 (d) 9
11. Find a so that the sum and product of the roots of the equation $2x^2 + (a - 3)x + 3a - 5 = 0$ are equal is
    (a) 1 (b) 2 (c) 0 (d) 4
12. If a and b are the roots of the equation $x^2 - kx + 16 = 0$ and $a^2 + b^2 = 32$, then the value of k is
    (a) 10 (b) -8 (c) -8, 8 (d) 6
13. The number of solution of $x^2 + |x - 1| = 1$ is
    (a) 1 (b) 0 (c) 2 (d) 3
14. The equation whose roots are numerically equal but opposite in sign to the roots $3x^2 - 5x - 7 = 0$ is
    (a) $3x^2 - 5x - 7 = 0$ (b) $3x^2 + 5x - 7 = 0$ (c) $3x^2 - 5x + 7 = 0$ (d) $3x^2 + x - 7$
15. If 8 and 2 are the roots of $x^2 + ax + c = 0$ and 3, 3 are the roots of $x^2 + dx + b = 0$; then the roots of the equation $x^2 + ax + b = 0$ are
    (a) 1, 2 (b) -1, 1 (c) 9, 1 (d) -1, 2
16. If a and b are the real roots of the equation $x^2 - kx + c = 0$, then the distance between the points (a, 0) and (b, 0) is
    (a) $\sqrt{k^2 - 4c}$ (b) $\sqrt{4k^2 - c}$ (c) $\sqrt{4c - k^2}$ (d) $\sqrt{k - 8c}$
17. If $\frac{kx}{(x+2)(x-1)} = \frac{2}{x+2} + \frac{1}{x-1}$, then the value of k is
    (a) 1 (b) 2 (c) 3 (d) 4
18. If $\frac{1-2x}{3+2x-x^2} = \frac{A}{3-x} + \frac{B}{x+1}$, then the value of A + B is
    (a) $\frac{-1}{2}$ (b) $\frac{-2}{3}$ (c) $\frac{1}{2}$ (d) $\frac{2}{3}$
19. The number of roots of $(x + 3)^4 + (x + 5)^4 = 16$ is
    (a) 4 (b) 2 (c) 3 (d) 0
20. The value of $\log_3 11.\log_{11} 13.\log_{13} 15.\log_{15} 27.\log_{27} 81$ is
    (a) 1 (b) 2 (c) 3 (d) 4

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