

Quadratic Equation and Inequality(Inequalities)

AI24BTECH11027 - R Sumanth

C MCQs WITH ONE CORRECT ANSWER

(1980)

- 1) If ℓ, m, n are real, $\ell \neq m$, then the roots by the equation: (1979)

$$(\ell - m)x^2 - 5(\ell + m)x - 2(\ell - m)$$
 - a) Real and equal
 - b) complex
 - c) Real and unequal
 - d) None of the above
- 2) The equation $x + 2y + 2z = 1$ and $2x + 4y + 4z = 9$ have (1979)
 - a) Only one solution
 - b) Only two solutions
 - c) Infinite number of solutions
 - d) None of these.
- 3) if x, y and z are real and different and $u = x^2 + 4y^2 + 9z^2 - 6yz - 3zx - 2xy$, then u is always. (1979)
 - a) non negative
 - b) zero
 - c) non positive
 - d) none of the above
- 4) let $a > 0, b > 0$ and $c > 0$. Then the roots of the equation $ax^2 + bx + c = 0$ (1979)
 - a) are real and negative
 - b) have negative real parts
 - c) both (a) and (b)
 - d) none of the above
- 5) Both the roots of the equations $(x - b)(x - c) + (x - a)(x - c) + (x - a)(x - b) = 0$ are always (1980)
 - a) positive
 - b) real
 - c) negative
 - d) none of these.
- 6) The least value of the expression $2\log_{10}x - \log_x(0.01)$, for $x > 1$, is (1980)
 - a) 10
 - b) 2
 - c) -0.01
 - d) none of these.
- 7) If $(X^2 + px + 1)$ is a factor of $(ax^3 + bx + c)$, then
 - a) $a^2 + c^2 = -ab$
 - b) $a^2 - c^2 = -ab$
 - c) $a^2 - c^2 = ab$
 - d) none of these
- 8) The no of real solution in equation $|x^2| - 3|x| + 2 = 0$ is (1982 - 2 Marks)
 - a) 4
 - b) 1
 - c) 3
 - d) 2
- 9) Two towns A and B are 60km apart. A school is to built to serve 150 students in a town B. If the total distance to be travelled by all 200 students is to be as small as possible, then the school should be build at (1982 - 2 Marks)
 - a) town B
 - b) 45 km from town A
 - c) town A
 - d) 45 km from town B
- 10) If p, q, r are any real numbers, then (1982 - 2 Marks)
 - a) $\max(p, q, r) < \max(p, q)$
 - b) $\min(p, q) = \frac{1}{2}(p + q)$
 - c) $\max(p, q) < \min(p, q, r)$
 - d) none of these
- 11) The largest interval for which $x^{12} - x^9 + x^4 - x + 1 > 0$ is (1982 - 2 Marks)
 - a) $-4 < x \leq 0$
 - b) $0 < x < 1$
 - c) $-100 < x < 100$
 - d) $-\infty < x < \infty$
- 12) The equation $x - \frac{2}{x-1} = 1 - \frac{2}{x-1}$ has (1984 - 2 marks)
 - a) no root
 - b) one root
 - c) two equal roots
 - d) infinitely many roots
- 13) If $a^2 + b^2 + c^2 = 1$, then $ab + bc + ca$ lies in the interval (1984 - 2 Marks)
 - a) $[\frac{1}{2}, 2]$

- b) $[-1, 2]$
- c) $[-\frac{1}{2}, 1]$
- d) $[-1, \frac{1}{2}]$

14) If $\log_{0.3}(x-1) < \log_{0.09}(x-1)$, then x lies in the interval (1985 - 2 Marks)

- a) $(2, \infty)$
- b) $(1, 2)$
- c) $(-2, -1)$
- d) none of these

15) If α, β are the roots of $x^2 + px + q = 0$ and α^4, β^4 are the roots of $x^2 - rx + s = 0$. then the equation $x^2 - 4qx + 2q^2 - r = 0$ has always (1989 - 2 Marks)

- a) (a) two real roots
- b) (b) two positive roots
- c) (c) two negative roots
- d) (d) one positive and one negative root