DAILY PRACTICE PROBLEM

Subject: MATHEMATICS
Chapter: Quadratic Equation
Topic: Location of Roots
DPP No.: 01

NEET Sarthi KOTA

Q.1 For what values of m, the equation $2x^2 - 2(2m + 1)x + m(m + 1) = 0$, $m \in R$ has one root is smaller than, 1 and the other root is greater than 1?

(1) $m \in (0, 3)$ (2) $m \in (-3, 0)$ (3) $m > 3$ (4) $m < -3$

Q.2 For what values of m, the equation $2x^2 - 2(2m + 1)x + m(m + 1) = 0$, $m \in R$ has one root is greater than 3 and the other root is smaller than 2?

(1) $m \in \left(\frac{7-\sqrt{33}}{2}, \frac{7+\sqrt{33}}{2}\right)$ (2) $m \in \left(-\frac{11-\sqrt{73}}{2}, \frac{7+\sqrt{33}}{2}\right)$

(3) $m \in \left(\frac{11-\sqrt{73}}{2}, \frac{7+\sqrt{33}}{2}\right)$ (4) $m \in \left(-\frac{7+\sqrt{33}}{2}, -\frac{11-\sqrt{73}}{2}\right)$

Q.3 For what values of m, the equation $2x^2 - 2(2m + 1)x + m(m + 1) = 0$, $m \in R$ has roots α and β are such that both 2 and 3 lie between α and β ?

(1) $m \in \left(\frac{7+\sqrt{33}}{2}, \infty\right)$ (2) $m \in \left(-\infty, \frac{7-\sqrt{33}}{2}\right)$

(3) $m < \frac{3}{2}$ (4) $m \in \left(\frac{11-\sqrt{73}}{2}, \frac{7+\sqrt{33}}{2}\right)$

Q.4 If the equation $(a - 5)x^2 + 2(a - 10)x + a + 10 = 0$ has roots of opposite sign, then find the values of a.

(1) $-10 < a < 5$ (2) $-3 < a < 2$ (3) $-10 > a > 5$ (4) $-5 < a < 5$

Q.5 If both the roots of $x^2 - ax + a = 0$ are greater than 2, then find the values of a.

(1) $a > 3$ (2) $a < -5$ (3) $a > 5$ (4) No such a exists.

Q.6 If both the roots of $x^2 + ax + 2 = 0$ lies in the interval (0, 3), then find the exhaustive range of values of a.

(1) $a \in \left(2\sqrt{2}, \frac{11}{3}\right]$ (2) $a \in \left(-\frac{11}{3}, -2\sqrt{2}\right]$

(3) $a \in \left(-\frac{11}{3}, -\sqrt{2}\right]$ (4) $a \in \left(-\frac{11}{3}, -2\sqrt{2}\right)$

Q.7 The value of λ for which the equation $2x^2 - 2(2\lambda + 1)x + \lambda(\lambda + 1) = 0$ may have one root less than λ and other roots greater than λ are given by

(1) $\lambda > -1$ (2) $\lambda < 0$

(3) $(-\infty, -1) \cup (0, \infty)$ (4) $\lambda < -1$

Q.8 The values of a for which the roots of the equation $(a + 1)x^2 - 3ax + 4a = 0$ $(a \neq -1)$ are real and greater than 1 are

(1) $\left[-\frac{10}{7}, 1\right]$ (2) $\left[-\frac{12}{7}, 0\right]$

(3) $\left[-\frac{16}{7}, -1\right)$ (4) $\left(-\frac{16}{7}, -0\right)$

Answer key

Q.	1	2	3	4	5	6	7	8
Ans:	1	3	4	1	4	2	3	3