

No 2

Assignment class X By Sanjay Mishra

Sub → Mathematics Chapter 4 Quadratic Equations

Solve the following in fair copy

Q(1) which of the following is a quadratic equation

(a) $x^3 - x^2 = (x-1)^3$

(b) $-2x^2 = (5-x)(2x - \frac{2}{5})$

(c) $(k+1)x^2 + \frac{3}{2}x - 7 = 7$, where $k = -1$

(d) $x^2 + 2x + 1 = (4-x)^2 + 3$

Q(2) Values of k for which the quadratic equation

$2x^2 - kx + k = 0$ has equal root is:

(A) 0 only

(B) 4

(C) 8 only (D) 0, 8

Q(3) Which constant must be added and subtracted to solve the quadratic equation

$9x^2 + \frac{3}{4}x - \sqrt{2} = 0$ by the method of completing

the square?

(A) $\frac{1}{8}$

(B) $\frac{1}{64}$

(C) $\frac{1}{4}$

(D) $\frac{9}{64}$

Q4) $(x^2+1)^2 - x^2 = 0$ has

- (A) Four real roots (B) two real roots
(C) no real roots (D) one real root

Q5) If the roots of $x^2 + mx + 12 = 0$ are in the ratio 1:3 then $m =$

- (A) ± 9 (B) ± 8 (C) ± 7 (D) ± 6

Q6) Very short answer type questions

If $\sqrt{x} + \sqrt{x} + \sqrt{x} + \dots = 6$ then find the value of x

Q7) Find the value of K

If $(K+4)x^2 + (K+1)x + 1 = 0$ has equal roots

Q8) Find the values of P for which one root of the Quadratic Equation $Px^2 - 14x + 8 = 0$ is 6 times the other.

Q9) Find the value of K for which the equation $x^2 + K(2x+K-1) + 2 = 0$ has real and equal roots.

Short answer Type Questions

Q10) If $ad \neq bc$, then prove that the equation $(a^2+b^2)x^2 + 2(ac+bd)x + (c^2+d^2) = 0$ has no real roots.

- Q11) If the roots of the Quadratic Equation $(a-b)x^2 + (b-c)x + (c-a) = 0$ are equal, prove that $2a = b+c$.

Long Answer Type Questions

Q12)

A and B working together can do a piece of work in 6 days. If A takes 5 days less than B to finish the work. In how many days B alone can do the work?

- Q13) A motorboat whose speed is 18 km/h in still water takes 1 hour more to go 24 km upstream than to return downstream to the same spot. Find the speed of the stream.

Q14) Solve $2^{2x+3} - 15(2^x - 1) = 57$

Q15) Solve $x = \frac{1}{2 - \frac{1}{2 - \frac{1}{2-x}}}$, $x \neq 2$

- Q16) Show that the Equation $2(a^2 + b^2)x^2 + 2(a+b)x + 1 = 0$ has no real roots when $a \neq b$.

- Q17) If (-5) is a root of the Quadratic Equation $2x^2 + Px - 15 = 0$ and the Quadratic Equation $P(x^2 + x) + K = 0$ has equal roots then find the values of P and K.