Chapter-Quadratic Equations
Question bank

Q1.

1.If the roots of the quadratic equation $(c^2 - ab)x^2 - 2(a^2 - bc)x + b^2 - ac = 0$ in x are equal then show that either $a = 0$ or $a^3 + b^3 + c^3 = 3abc$

Q2.

.If the roots of the quadratic equation

$(x - a)(x - b) + (x - b)(x - c) + (x - c)(x - a) = 0$ are equal. Then show that $a = b = c$.

Q3.

3.If the equation $(1 + m^2)x^2 + 2mcx + (c^2 - a^2) = 0$ has equal roots, prove that $c^2 = a^2(1 + m^2)$

Q4.

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.

Q5.

.Write all the values of p for which the quadratic equation $x^2 + px + 16 = 0$ has equal roots. Find the roots of the equation so obtained.

Q6.

.Find x in terms of a, b and c :

$$\frac{a}{x - a} + \frac{b}{x - b} = \frac{2c}{x - c}, x \neq a, b, c$$

Q7.

.Solve for x : $\dfrac{x-1}{2x+1} + \dfrac{2x+1}{x-1} = 2$ where $x \neq -\dfrac{1}{2}, 1$

Q8.

2.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.

Q9.

Two water taps together can fill a tank in 6 hours. The tap of larger diameter takes 9 hours less than the smaller one to fill the tank separately. Find the time in which each tap can separately fill the tank.

Q10.

Prove that if a quadratic equation has rational coefficients and an irrational root of the form $p + \sqrt{q}$, then its other root must be $p - \sqrt{q}$.