

Assignment ch 4 Quadratic Equations.

Q1 which of the following equations has two distinct real roots

(a) $2x^2 - 3\sqrt{2}x + \frac{9}{4} = 0$ (b) $x^2 + x - 5 = 0$, (c) $x^2 + 1$

Q2 $(x^2 + 1)^2 - x^2 = 0$ has (ans) (b)

(a) four real roots (b) two real roots (c) three real roots (d) no real roots

Q3 Solve for x,

$$\frac{x+1}{x-1} + \frac{x-2}{x+3} = 3$$

Ans (d)
(-5, 2)

Q4 $\frac{1}{2a+b+2x} = \frac{1}{2a} + \frac{1}{b} + \frac{1}{2x}$; find x & y.

(ans. $x = -a$
 $y = -\frac{b}{2}$)

Q5 Solve for x:

$$4\sqrt{3}x^2 + 5x - 2\sqrt{3} = 0 \quad \left(\text{ans } \frac{\sqrt{3}}{4}, -\frac{2}{\sqrt{3}} \right)$$

Q6 For what value of k, quadratic equation

$$2x^2 - kx + k = 0 \text{ has (a) equal roots. (ans 0, 8)}$$

(b) real roots.

Q7 If roots of quadratic equation

$$x^2 + kx + 12 = 0 \text{ are in ratio } 1:3$$

then find k. (ans ± 8)

Q8 one year ago, the father was 8 times as old as his son, Now his age is the square of his son's age. Find their present age.

Q9 Two water taps together can fill a tank in $11\frac{1}{9}$ min. The larger tap takes 5 min less than

the smaller one to fill tank separately.

find time in which each tap can fill tank separately. (ans. 20 min, 25)

Q10 Solve for x by using quadratic formula.

$$36x^2 - 12ax + a^2 - b^2 = 0.$$

Q11. If the price of a book is reduced. $\left(\frac{a+b}{6}, \frac{a-b}{6}\right)$ ^{Aus}

by ₹ 5, a person can buy 5 more books for ₹ 300. Find the original list price of the book.

(ans. ₹ 20)

Q12 Find roots of quadratic equation;

$$\frac{2}{5}y^2 - y - \frac{3}{5} = 0. \quad \left(\begin{array}{l} \text{Aus.} \\ y=3, y=-\frac{1}{2} \end{array}\right)$$

Q13 If -4 is a root of the equation

$$x^2 + px + 4 = 0 \text{ and the equation } x^2 + px + q = 0 \text{ has equal roots}$$

find p and q (ans: $p=3, q=\frac{9}{4}$)

Q14 The sum of two numbers is 16 and

the sum of their reciprocal is $\frac{1}{3}$.
find the numbers. (ans 4, 12)

Q15 find value of k if quadratic equation $(k+4)x^2 + (k+1)x + 1$ has equal roots.

(ans: $k=5, -3$)