

WORKSHEET-1

Q. 1. The value of x in $x - \frac{18}{x} = 6$ is :

(a) real and unequal

(c) roots are imaginary

(b) real and equal

(d) roots are not equal

Q. 2. If the quadratic equation $3x^2 - k\sqrt{3}x + 4 = 0$ has equal roots, then the value of k is _____

Q. 3. If $x = 3$ is one of the root of quadratic equation $x^2 - 2ax - 6 = 0$, then the value of a is _____

Q. 4. Solve for x : $\frac{14}{x+3} - 1 = \frac{5}{x+1}$, $x \neq -3, -1$.

Q. 5. Solve for x : $\sqrt{2x+9} + x = 13$.

Q. 6. Express the equation $\frac{x-2}{x-3} + \frac{x-4}{x-5} = \frac{10}{3}$; ($x \neq 3, 5$) as a quadratic equation in standard form.

Hence, find the roots of the equation so formed.

Q. 7. If $ad \neq bc$, then prove that equation $(a^2 + b^2)x^2 + 2(ac + bd)x + (c^2 + d^2) = 0$ has no real roots.

Q. 8. The altitude of a right-angled triangle is 7 cm less than its base. If the hypotenuse is 13 cm, find the other two sides.

Q. 9. If $y = 1$ is a common root of the equations $ay^2 + ay + 3 = 0$ and $y^2 + b + y = 0$, then find ab .

Q. 10. For which value of p will $(3p + 1)x^2 + 4x + 2 = 0$ not be a quadratic equation ?

Q. 11. The sum of the squares of two consecutive positive odd numbers is 514. Find the numbers.

Q. 12. Find the values of k for which the quadratic equation $(3k + 1)x^2 + 2(k + 1)x + 1 = 0$ has real and equal roots.

Q. 13. The length of a rectangle is thrice as long as the side of a square. The side of the square is 4 cm more than the width of the rectangle. Their areas being equal, find their dimensions.

Q. 14. Find x in terms of a and b :

$$\frac{a}{(ax-1)} + \frac{b}{(bx-1)} = a + b, x \neq \frac{1}{a}, \frac{1}{b}.$$

Q. 15. (a) A natural number, when increased by 12, equals 160 times its reciprocal. Find the number.

OR

(b) If one root of the quadratic equation $x^2 + 12x - k = 0$ is thrice the other root, then find the value of k .

Q. 16. Read the following passage and answer the questions that follows :

Meeta and Geeta are standing at one corner of a rectangular field (say at D) and to reach at B, Meeta is walking along DB (diagonal) and Geeta is walking along sides of it. The length of field is 4 m more than twice its breadth and the area of field is 240 sq m.

(i) Find the breadth of rectangular field.

(ii) Find the length of rectangular field.

(iii) Who covers less distance ?

