

## CHAPTER - 4

### Quadratic Equations

#### Level - 1 (01 Marks Question)

Q.1 Check whether the following are quadratic equation or not

i)  $(x-3)(2x+1) = x(x+5)$

ii)  $(x+2)^3 = 2x(x^2-1)$

Q.2 Solve by factorisation method

$$x^2 - 7x + 12 = 0$$

Q.3 Find the discriminant

$$x^2 - 3x - 10 = 0$$

Q.4 Find the nature of root

$$2x^2 + 3x - 4 = 0$$

Q.5 Find the value k so that quadratic equation  $3x^2 - kx + 27 = 0$  has equal root

Q.6 Determine whether given value of x is a solution or not

(1)  $x^2 - 3x - 1 = 0$  :  $x = 1$

#### Level 2 (02 Marks)

Example 1 Solve the quadratic equation  $9x^2 - 3x - 20 = 0$  by factorisation method

and find the roots of quadratic equation.

Solution  $9x^2 - 3x - 20 = 0$

$$9x^2 - 15x + 12x - 20 = 0$$

$$3x(3x-5) + 4(3x-5) = 0$$

$$(3x-5)(3x+4) = 0$$

either  $3x - 5 = 0$  or  $3x + 4 = 0$

$$3x = 5$$

$$3x = -4$$

$$x = \frac{5}{3}$$

$$x = \frac{-4}{3}$$

- Q.1 Solve by quadratic equation  $16x^2 - 24x - 1 = 0$  by using quadratic formula.
- Q.2 Determine the values of k for which the quadratic equation  $2x^2 + 3x + K = 0$  have both roots real.
- Q.3 Find the roots of equation  $2x^2 + x - 6 = 0$
- Q.4 Find the roots of equation  $x - \frac{1}{x} = 3$   $x \neq 0$

### Level 3 (03 Marks)

- Q.1 The sum of the squares of two consecutive positive integers is 265. Find the integers.
- Q.2 Divide 39 into two parts such that their product is 324.
- Q.3 The sum of number and its reciprocal is  $\frac{17}{4}$ . Find the number.
- Q.4 The length of rectangle is 5cm more than its breadth if its area is 150 Sq cm. Find the length and breadth.
- Q.5 The altitude of a right triangle is 7cm less than its base. If the hypotnuse is 13 cm. Find the other two sides.