

Chapter:

Q.1 Multiple Choice Questions

3

- 1 $x = 0$ and $x = -3$ are roots of quadratic equation $x^2 + 3x = 0$.
a. True b. False
- 2 The product of the roots of the quadratic equation $2x^2 + 5x - 7 = 0$ is
a. $\frac{7}{2}$ b. $-\frac{5}{2}$ c. $\frac{5}{2}$ d. $-\frac{7}{2}$
- 3 Degree of quadratic equation is always
a. 1 b. 2 c. 3 d. 4

Q.2 Answer the following

2

- 1 Decide if the following is quadratic equation or not ?
 $(l + 2)(l - 5) = 0$
- 2 Obtain the quadratic equation if roots are $-3, -7$.

Q.3 Attempt the following (Activity)(Any Two)

6

- 1 Solve the following quadratic equations by completing square method.

$$x^2 + x - 20 = 0$$

$$x^2 + x - 20 = 0$$

$$x^2 + x + \underline{\hspace{2cm}} - 20 = 0$$

[Taking square root]

$$\therefore \left(x + \frac{1}{2}\right)^2 = \frac{1}{4} + 20$$

$$\therefore \left(x + \frac{1}{2}\right)^2 = \frac{1+80}{4}$$

$$\therefore \left(x + \frac{1}{2}\right)^2 = \underline{\hspace{2cm}}$$

$$\therefore x + \frac{1}{2} = \pm \frac{9}{2}$$

$$\therefore x + \frac{1}{2} = \underline{\hspace{2cm}} \quad \text{or} \quad x + \frac{1}{2} = \underline{\hspace{2cm}}$$

$$\therefore x = \frac{9}{2} - \frac{1}{2} \quad \text{or} \quad x = -\frac{9}{2} - \frac{1}{2}$$

$$\therefore x = \frac{9-1}{2} \quad \text{or} \quad x = \frac{-9-1}{2}$$

$$\therefore x = \frac{8}{2} \quad \text{or} \quad x = \frac{-10}{2}$$

$$\therefore x = \underline{\hspace{2cm}} \quad \text{or} \quad x = \underline{\hspace{2cm}}$$

\therefore The roots of the given quadratic equation are _____.

- 2 The roots of each of the following quadratic equations are real and equal, find k.

$$3y^2 + ky + 12 = 0$$

Here, $a = 3, b = k, c = 12$

$$\begin{aligned} \Delta &= \underline{\hspace{2cm}} \\ &= k^2 - 4(3)(12) \\ &= \underline{\hspace{2cm}} \end{aligned}$$

The roots are real and equal ... (Given)

$$\therefore \Delta = \underline{\hspace{2cm}}$$

$$\therefore k^2 - 144 = 0$$

$$\therefore \underline{\hspace{2cm}} = 0$$

$$\therefore k + 12 = 0 \quad \text{or} \quad k - 12 = 0$$

$$\therefore k = \underline{\hspace{2cm}} \quad \text{or} \quad k = \underline{\hspace{2cm}}$$

3 Solve the following quadratic equations by factorization method.

$$3x^2 - 2\sqrt{6}x + 2 = 0$$

$$\therefore 3x^2 \underline{\hspace{2cm}} + 2 = 0$$

$$\therefore \sqrt{3}x(\sqrt{3}x - \sqrt{2}) - \sqrt{2}(\sqrt{3}x - \sqrt{2}) = 0$$

$$\therefore \underline{\hspace{2cm}} (\sqrt{3}x - \sqrt{2}) = 0$$

$$\therefore (\sqrt{3}x - \sqrt{2}) = 0 \text{ or } \underline{\hspace{2cm}} = 0$$

$$\therefore x = \underline{\hspace{2cm}} \text{ or } x = \underline{\hspace{2cm}}$$

\therefore The roots of the given equation are $\underline{\hspace{2cm}}$ and $\underline{\hspace{2cm}}$.

Q.4 Solve the following(Any Two)

6

1 Solve the following quadratic equation.

$$5m^2 + 2m + 1 = 0$$

2 Solve quadratic equations using formula. $25x^2 + 30x + 9 = 0$

3 The roots of each of the following quadratic equations are real and equal, find k.

$$kx(x - 2) + 6 = 0$$

Q.5 Answer the following(Any One)

4

1 Present age of mother of Manish is 1 year more than 5 times the present age of Manish. Four years ago, the product of their ages was 22. Find the present age of Manish and his mother.

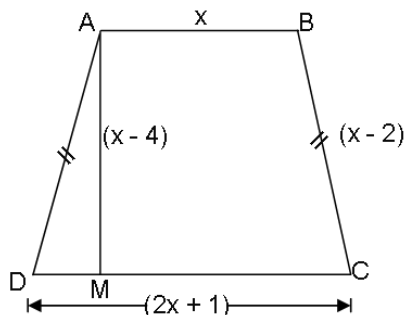
2 Sum of the roots of a quadratic equation is double their product. Find k if equation is $x^2 - 4kx + k + 3 = 0$.

Q.6 Answer the following (Any Three)

9

1 A tank fills completely in 2 hours if both the taps are open. If only one of the taps is open at the given time, the smaller tap takes 3 hours more than the larger one to fill the tank. How much time does each tap take to fill the tank completely?

2 In the adjoining fig. $\square ABCD$ is a trapezium $AB \parallel CD$ and its area is 33 cm^2 . From the information given in the figure find the lengths of all sides of the $\square ABCD$.



3 The sum of squares of two consecutive even number is 244; find the numbers.

4 If α and β are the roots of $x^2 + 5x - 1 = 0$ then find -

i) $\alpha^3 + \beta^3$ ii) $\alpha^2 + \beta^2$