



### Quadratic Equations Ex 8.1 Q3

**Answer :**

In each of the following cases find  $k$ .

(i) We are given here that,

$$7x^2 + kx - 3 = 0, x = \frac{2}{3}$$

Now, as we know that  $x = \frac{2}{3}$  is a solution of the quadratic equation, hence it should satisfy the

equation. Therefore substituting  $x = \frac{2}{3}$  in the above equation gives us,

$$\begin{aligned} 7\left(\frac{2}{3}\right)^2 + k\left(\frac{2}{3}\right) - 3 &= 0 \\ \frac{28 + 6k - 27}{3} &= 0 \end{aligned}$$

$$6k = -1$$

$$k = -\frac{1}{6}$$

Hence, the value of  $k = -\frac{1}{6}$

(ii) We are given here that,

$$x^2 - x(a+b) + k = 0, x = a$$

Now, as we know that  $x = a$  is a solution of the quadratic equation, hence it should satisfy the equation. Therefore substituting  $x = a$  in the above equation gives us,

$$a^2 - a(a+b) + k = 0$$

$$a^2 - a^2 - ab + k = 0$$

$$k = ab$$

Hence the value of  $k = ab$

(iii) We are given here that,

$$kx^2 - \sqrt{2}x - 4 = 0, x = \sqrt{2}$$

Now, as we know that  $x = \sqrt{2}$  is a solution of the quadratic equation, hence it should satisfy the equation. Therefore substituting  $x = \sqrt{2}$  in the above equation gives us,

$$k(\sqrt{2})^2 + \sqrt{2}(\sqrt{2}) - 4 = 0$$

$$2k + 2 - 4 = 0$$

$$2k = 2$$

$$k = 1$$

Hence the value of  $k = 1$

(iv) We are given here that,

$$x^2 + 3ax + k = 0, x = -a$$

Now, as we know that  $x = -a$  is a solution of the quadratic equation, hence it should satisfy the equation. Therefore substituting  $x = -a$  in the above equation gives us,

$$(-a)^2 + 3a(-a) + k = 0$$

$$a^2 - 3a^2 + k = 0$$

$$k = 2a^2$$

Hence the value of  $k = 2a^2$

\*\*\*\*\* END \*\*\*\*\*