

Ncert Solutions Class 10 Quadratic Equations

Exercise 4.3

2. Find the values of k for each of the following quadratic equations, so that they have two equal roots.

(i) $2x^2 + kx + 3 = 0$ (ii) $kx(x - 2) + 6 = 0$

(i) Solution:

Given equation is $2x^2 + kx + 3 = 0$

Comparing with standard form $ax^2 + bx + c = 0$,

we get : $a = 2, b = k, c = 3$

as roots of equation are given equal.

$$\therefore b^2 - 4ac = 0$$

$$\Rightarrow b^2 - 4ac = (k)^2 - 4 \times (2) \times (3) = k^2 - 24 = 0$$

$$\Rightarrow k^2 = 24 \quad \Rightarrow k = \pm 2\sqrt{6}$$

(ii)

Given equation is $kx(x - 2) + 6 = 0 \Rightarrow kx^2 - 2kx + 6 = 0$

Comparing with standard form $ax^2 + bx + c = 0$,

we get : $a = k, b = -2k, c = 6$

as roots of equation are given equal.

$$\therefore b^2 - 4ac = 0$$

$$\Rightarrow b^2 - 4ac = (-2k)^2 - 4 \times (k) \times (6) = 4k^2 - 24k = 0$$

$$\Rightarrow 4k(k - 6) = 0 \quad \Rightarrow k = 0, 6$$