



Maths - Boards - Ex 1.1 - Question 10a

Ques: Find the roots of the equation

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

$a = 3, b = -10, c = 3$

$D = b^2 - 4ac = (-10)^2 - 4(3)(3)$

$D = 100 - 36 = 64$

$\sqrt{D} = \sqrt{64} = 8$

Substituting the value of  $\sqrt{D}$  in equation (1)

$\frac{-b \pm \sqrt{D}}{2a} = \frac{-(-10) \pm 8}{2(3)}$

$\frac{10 \pm 8}{6} = \frac{10+8}{6} = \frac{18}{6} = 3$

$\frac{10 \pm 8}{6} = \frac{10-8}{6} = \frac{2}{6} = \frac{1}{3}$

$\therefore x = 3$  and  $x = \frac{1}{3}$

Substituting  $x = 3$  in equation (1)

$3(3)^2 - 10(3) + 3 = 0$

$27 - 30 + 3 = 0$

$0 = 0$

Substituting  $x = \frac{1}{3}$  in equation (1)

$3\left(\frac{1}{3}\right)^2 - 10\left(\frac{1}{3}\right) + 3 = 0$

$3\left(\frac{1}{9}\right) - \frac{10}{3} + 3 = 0$

$\frac{1}{3} - \frac{10}{3} + 3 = 0$

$\frac{1-10+9}{3} = 0$

$\frac{0}{3} = 0$

$0 = 0$

$\therefore x = 3$  and  $x = \frac{1}{3}$  are the roots of the equation.