

Ex 4.4

NCERT Solutions by Dev Anoop (Bathinda)

10) $2x^2 - 3x + 5 = 0$

comparing with standard form of quadratic equation

$a = 2, b = -3, c = 5$

$D = b^2 - 4ac$

$= (-3)^2 - 4 \times 2 \times 5$

$= 9 - 40$

$= -31$

$\therefore D < -31$

\therefore given quad. eqn. has no real roots

11) $3x^2 - 4\sqrt{3}x + 4 = 0$

comparing

$a = 3, b = -4\sqrt{3}, c = 4$

$D = b^2 - 4ac$

$= (-4\sqrt{3})^2 - 4 \times 3 \times 4$

$= 48 - 48$

$= 0$

$\therefore D = 0$

\therefore roots are real and equal

$x = \frac{-b + \sqrt{D}}{2a}, \frac{-b - \sqrt{D}}{2a}$

$= \frac{4\sqrt{3} + 0}{2 \times 3}, \frac{4\sqrt{3} - 0}{2 \times 3}$

$= \frac{4\sqrt{3}}{6}, \frac{4\sqrt{3}}{6}$

$= \frac{2\sqrt{3}}{3}, \frac{2\sqrt{3}}{3}$

111) $2x^2 - 6x + 3 = 0$

comparing

$a = 2, b = -6, c = 3$

$D = b^2 - 4ac$

$= (-6)^2 - 4 \times 2 \times 3$

$= 36 - 24$

$= 12$

$x = \frac{-b + \sqrt{D}}{2a}, \frac{-b - \sqrt{D}}{2a}$

$= \frac{6 + \sqrt{12}}{2 \times 2}, \frac{6 - \sqrt{12}}{2 \times 2}$

$= \frac{6 + 2\sqrt{3}}{4}, \frac{6 - 2\sqrt{3}}{4}$

$= \frac{2(3 + \sqrt{3})}{4}, \frac{2(3 - \sqrt{3})}{4}$

$= \frac{3 + \sqrt{3}}{2}, \frac{3 - \sqrt{3}}{2}$