

Solve for eqⁿ $21x^2 - 28x + 10 = 0$

Sol: Given $21x^2 - 28x + 10 = 0$

by comparing with $ax^2 + bx + c = 0$

Here: $a = 21$, $b = -28$, $c = 10$

$$\begin{aligned}\text{Discriminant } (D) &= b^2 - 4ac \\ &= (-28)^2 - 4(21)(10) \\ &= 784 - 840 = -56\end{aligned}$$

$$\begin{aligned}\text{So, solutions} &= \frac{-b \pm \sqrt{D}}{2a} \\ &= \frac{28 \pm \sqrt{-56}}{2(21)} \\ &= \frac{28 \pm \sqrt{-56}}{42} \\ &= \frac{28 \pm i\sqrt{56}}{42}, \frac{28 - i\sqrt{56}}{42} \\ &= \frac{28 \pm i2\sqrt{14}}{42}, \frac{28 - i2\sqrt{14}}{42} \\ &= \frac{14 \pm i\sqrt{14}}{21}, \frac{14 - i\sqrt{14}}{21} \\ &= \frac{2}{3} + \frac{\sqrt{14}}{21}i, \frac{2}{3} - \frac{\sqrt{14}}{21}i\end{aligned}$$