

Quadratic Equations Ex 14.1 Q17

$$8x^2 - 9x + 3 = 0$$

We will apply discriminant rule,

$$X = \frac{-b \pm \sqrt{D}}{2a} \dots \left(A\right)$$

where
$$D = b^2 - 4ac$$

= $(-9)^2 - 4.8.3$
= $81 - 96$
= -15

from (A)
$$X = \frac{-b \pm \sqrt{D}}{2a}$$

$$= \frac{-(-9) \pm \sqrt{-15}}{2.8}$$

$$= \frac{9 \pm \sqrt{15}i}{16}$$

Thus

$$\therefore \quad x = \frac{9 \pm \sqrt{15}i}{16}$$

Quadratic Equations Ex 14.1 Q18

$$13x^2 + 7x + 1 = 0$$

We will apply discriminant rule,

$$x = \frac{-b \pm \sqrt{D}}{2a} \dots (A)$$

where
$$D = b^2 - 4ac$$

= $7^2 - 4.13.1$
= $49 - 52$
= -3

Thus, from (A)
$$x = \frac{-7 \pm \sqrt{-3}}{2.13}$$

$$=\frac{-7\pm\sqrt{3}i}{26}$$

Thus

$$\therefore \quad x = \frac{-7}{26} \pm \frac{\sqrt{3}}{26}i$$

Quadratic Equations Ex 14.1 Q19

$$2x^2 + x + 1 = 0$$

We will apply discriminant rule,

$$x = \frac{-b \pm \sqrt{D}}{2a} \dots (A)$$

where
$$D = b^2 - 4ac$$

= $1^2 - 4.2.1$
= $1 - 8$
= -7

Thus, from (A)
$$x = \frac{-1 \pm \sqrt{-7}}{2.2}$$

$$=\frac{-1\pm\sqrt{7}i}{4}$$

Thus

$$\therefore \quad x = \frac{-1}{4} \pm \frac{\sqrt{7}}{4}i$$

Quadratic Equations Ex 14.1 Q20

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

We will apply discriminant rule,

$$x = \frac{-b \pm \sqrt{D}}{2a} \dots (A)$$

where
$$D = b^2 - 4ac$$

= $(-\sqrt{2})^2 - 4.\sqrt{3}.3\sqrt{3}$
= $2 - 36$
= -34

from (A)
$$x = \frac{-\left(-\sqrt{2}\right) \pm \sqrt{-34}}{2.\sqrt{3}}$$

$$=\frac{\sqrt{2}\pm\sqrt{34}i}{2\sqrt{3}}$$

Thus

$$\therefore \quad x = \frac{\sqrt{2} \pm \sqrt{34}i}{2\sqrt{3}}$$

******* END ******