

الف) $y = x^2 + 4x + 5$ $a > 0 \rightarrow \min_{ext}$ $\Delta = b^2 - 4ac = 16 - 20 = -4$

$-\frac{b}{2a} = -\frac{4}{2} = -2$ $-\frac{\Delta}{4a} = \frac{4}{4} = 1$

ب) $y = -x^2 + 4x - 3$ $a < 0 \rightarrow \max_{ext}$ $-\frac{b}{2a} = -\frac{4}{-2} = 2$ $-\frac{\Delta}{4a} = \frac{16 - 12}{-4} = -1$

موضایب صفر است $-x^2 + 4x - 3 = 0 \rightarrow x = 1, x = 3$

$2x^2 + 3x + a = 0$ $\Delta = b^2 - 4ac = 9 - 8a$

الف) $\Delta > 0 \Rightarrow 9 - 8a > 0 \Rightarrow a < \frac{9}{8}$

ب) $\Delta = 0 \Rightarrow 9 - 8a = 0 \Rightarrow a = \frac{9}{8}$

ج) $\Delta < 0 \Rightarrow 9 - 8a < 0 \Rightarrow a > \frac{9}{8}$

برای اینکه معادله ریشه داشته باشد $\Delta \geq 0 \Rightarrow a \leq \frac{9}{8}$

$x^2 - 2x - 1 = 0 \Rightarrow (x+1)^2 - 2 = 0 \Rightarrow (x-1)^2 = 2 \Rightarrow x-1 = \pm\sqrt{2} \Rightarrow x = 1 \pm \sqrt{2}$

$x^2 - x - 1 = 0 \Rightarrow (x - \frac{1}{2})^2 = \frac{5}{4} \Rightarrow x - \frac{1}{2} = \pm\frac{\sqrt{5}}{2} \Rightarrow x = \frac{1 \pm \sqrt{5}}{2}$

الف) $x^2(2x-1) = 0 \Rightarrow \Delta = b^2 - 4ac = 4 + 4 = 8$ $x = \frac{-b \pm \sqrt{\Delta}}{2a} = \frac{1 \pm \sqrt{2}}{2}$

ب) $x^2 + x - 4 = 0$ $\Delta = 1^2 - (4)(-4) = 17$ $x = \frac{-1 \pm \sqrt{17}}{2}$

$x = \frac{-1 - \sqrt{17}}{2}$ $x = \frac{-1 + \sqrt{17}}{2}$

$$(x-f)(x-v)=0 \quad \begin{cases} \rightarrow x=f \\ \rightarrow x=v \end{cases} \quad \text{ان)$$

(P)

$$\rightarrow (x+v)(x-f)=0 \quad \begin{cases} \rightarrow x=-v \\ \rightarrow x=f \end{cases} \quad \text{ان)$$

$$\text{ان) } \Delta x^2 - 14x + v = 0 \Rightarrow x^2 - 14x + v = 0 \quad (x-\Delta)(x-v)=0 \quad (P)$$

$$\rightarrow vx^2 - 14x + v = 0 \Rightarrow x^2 - 14x + v = 0$$

$$(x-v)(x-v)=0 \quad \begin{cases} \rightarrow \left(\frac{v}{2}\right) \\ \rightarrow \left(\frac{v}{2}\right) \end{cases} \quad \text{ان)$$

$$\text{ان) } vx^2 - \Delta x + v = 0 \quad \Delta = b^2 - 4ac = 14\Delta - 14v = 1 \quad (P)$$

$$\rightarrow vx^2 + \Delta x + v = 0$$

$$\Delta = b^2 - 4ac = 14\Delta - 14v = 1 \quad \text{ان)$$

$$\text{ان) } vx^2 - \Delta x + 1 = 0 \quad \Delta = 14\Delta - 14v = 1 \quad \text{ان)$$

$$\text{ان) } vx^2 + v\Delta + 1 = 0 \quad \Delta = 14\Delta - 14v = 1 \quad \text{ان)$$

$$\text{ان) } vx^2 - 14x + 1 = 0$$

$$\Delta = b^2 - 4ac = 14\Delta - 14v = 1 \quad \text{ان)$$

$$\text{ان) } vx^2 - 14x + 1 = 0 \quad \Delta = 14\Delta - 14v = 1 \quad \text{ان)$$

$$\rightarrow vx^2 - 14x + 1 = 0 \quad \Delta = 14\Delta - 14v = 1 \quad \text{ان)$$

$$\text{ان) } vx^2 - 14x + 1 = 0 \quad \Delta = 14\Delta - 14v = 1 \quad \text{ان)$$

$$\text{ان) } vx^2 - 14x + 1 = 0 \quad \Delta = 14\Delta - 14v = 1 \quad \text{ان)$$

$$\frac{1}{v} \quad \frac{1}{v}$$

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