

$$x^r - 11x + 2A = 0 \rightarrow (x-V)(x-f) \rightarrow x=f \quad x=V$$

$\begin{matrix} -f-V & f-V \\ & \downarrow \\ & (-V)(-f) \end{matrix}$

(الف)

$$x^r + 2x - 2A = 0 \rightarrow (x+V)(x-f) \rightarrow x=f \quad x=-V$$

$\begin{matrix} V-f & V(-f) \end{matrix}$

(ب)

$$\omega x^r - 12x + V = 0 \rightarrow x^r - 12x + 3\omega = 0 \rightarrow (x-V)(x+\omega) \rightarrow x=V \rightarrow \frac{V}{\omega}$$

$x=\omega \rightarrow 1$

(الف)

$$2x^r - 10x + V = 0 \rightarrow x^r - 10x + 21 = 0 \rightarrow x^r - 10x + 2\omega = 4 \rightarrow (x+(-\omega))^r = 4 \rightarrow (x-\omega)^r = 4$$

(ب)

$$\rightarrow x-\omega = \pm 2 \rightarrow x=3 \rightarrow 1$$

$x=V \rightarrow \frac{V}{4}$

$$2x^r - \omega x + 4 \quad x = \frac{-b \pm \sqrt{b^2 - 4ac}}{2a} = \frac{\omega \pm \sqrt{\omega^2 - 8}}{2} = \frac{\omega \pm 1}{2} \quad \begin{cases} x = \frac{\omega}{2} \\ x = 1 \end{cases}$$

(الف)

$$2x^r + \omega x + 4 \rightarrow a+c=b \quad \begin{cases} x=1 \\ x = -\frac{c}{a} = -\frac{4}{2} \end{cases}$$

(ب)

$$2x^r - \omega x + 1 \rightarrow x = \frac{-b \pm \sqrt{b^2 - 4ac}}{2a} \rightarrow \frac{\omega \pm \sqrt{\omega^2 - 4}}{2} \rightarrow \frac{\omega \pm \sqrt{12}}{2}$$

(ج)

$$4x^r + Vx + 9 \rightarrow x = \frac{-b \pm \sqrt{b^2 - 4ac}}{2a} = \frac{-V \pm \sqrt{V^2 - 36}}{4} \rightarrow \text{معدلة، ليس، درجته اعلا، متعين نادر}$$

(د)

$$x^r - 4x - 2 \rightarrow x = \frac{-b \pm \sqrt{b^2 - 4ac}}{2a} \rightarrow \frac{4 \pm \sqrt{16 - (-8)}}{2} = \frac{4 \pm \sqrt{24}}{2}$$

$$S = -\frac{b}{a} \quad P = \frac{c}{a}$$

$$S = 4 \quad P = -2$$

$$S^2 - 2P = 16 - 2(-2) = 18$$

(الف)

$$S^2 - 2P = 16 - 2(2(-2)) = 16 + 8 = 24$$

(ب)

$$\binom{V}{\omega} + \binom{9}{2} = \frac{V!}{\omega!(V-\omega)!} + \frac{9!}{2!(9-2)!} = \frac{V \times \omega \times \omega!}{\omega! \times 2!} + \frac{9 \times 8 \times 7!}{2! \times 7!} = 21 + 36 = 57$$

(الف)

$$\binom{9}{4} - \binom{11}{2} = \frac{9!}{4!(9-4)!} - \frac{11!}{2!(11-2)!} = \frac{9 \times 8 \times 7 \times 6 \times 5!}{4! \times 5!} - \frac{11 \times 10 \times 9!}{2! \times 9!} = 12 \times 6 - 55 = 72 - 55 = 17$$

(ب)