

$$\frac{-\Delta}{\epsilon a} = v \Rightarrow \frac{-(b^2 - \epsilon(-1)(3))}{\epsilon} = v \Rightarrow b^2 + 12 = 28$$

$$\Rightarrow b^2 = \frac{28 - 12}{12} \quad b = \frac{2}{3} \quad y = -n^2 + \epsilon n + 2 \Rightarrow \Delta > 0$$

$$y = -n^2 - \epsilon n + 2 \Rightarrow \Delta > 0$$

الف) $n^2 = t$

$$\Rightarrow t^2 + 2t + 2 = 0 \quad \epsilon - \epsilon(1)(2) < 0 \Rightarrow \Delta < 0$$

ب) $(t - n^2) = t$

$$\Rightarrow t^2 - 2t - 10 = 0 \Rightarrow (t + 2)(t - 5) = 0 \Rightarrow t = -2 \text{ یا } 5$$

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$\epsilon - n^2 = 0 \quad n^2 = -10$
 $\epsilon - n^2 = -2 \quad n^2 = 2$
 $n = \pm\sqrt{2}$

$|\alpha - \beta| = 2$

$$|\alpha - \beta| = \frac{\sqrt{\Delta}}{|\alpha|} = \frac{\sqrt{(12)^2 - \epsilon(\epsilon)(3)}}{\epsilon} = 2$$

$$\sqrt{144 - 12\epsilon} = 2 \quad ()^2 \rightarrow 144 - 12\epsilon = 4\epsilon \Rightarrow 12\epsilon = 148 \Rightarrow \epsilon = 12$$

$\beta = \alpha + 2 \quad S = 2\alpha + 2 = \epsilon \quad 2\alpha = \epsilon - 2 \Rightarrow \alpha = 1 \Rightarrow \beta = 1 + 2 = 3$

$\epsilon n^2 - 12n + 12 = 0$
 $(12)^2 - \epsilon(\epsilon)(12) > 0$
 $\Delta > 0$

$\beta = 2\alpha - \epsilon \quad S = \frac{-b}{a} = \frac{2}{2} = 1$

$\alpha + \beta = \alpha + 2\alpha - \epsilon = 3\alpha - \epsilon = 2 \Rightarrow 3\alpha = 2 + \epsilon \Rightarrow \alpha = 2$

$\beta = 2(2) - \epsilon = 0$

$P = \alpha \cdot \beta = 2 \times 0 = 0 \Rightarrow P = \frac{c}{a} = 0 \Rightarrow \frac{m-1}{2} = 0 \Rightarrow m-1=0 \Rightarrow m=1$

$3n^2 - 4n = 0 \Rightarrow 34 - \epsilon(2)(4) > 0 \Rightarrow \Delta > 0$

$\alpha = \frac{1}{\beta} \quad P = \alpha \cdot \beta = \frac{c}{a} \quad P = \frac{1}{\beta} \times \beta = 1$

$\frac{m^2 - 2}{-m} = 1 \Rightarrow m^2 - 2 = -m \Rightarrow m^2 + m - 2 = 0 \Rightarrow \Delta = 1 - \epsilon(1)(-2) > 0$

$\Rightarrow \frac{-1+2}{2} = \frac{1}{2} \quad \frac{-1-2}{2} = \frac{-3}{2}$

$\Delta > 0 \quad m=1 \quad -n^2 + \epsilon n - 1 = 0 \quad (1)^2 - \epsilon(-1)(-1) > 0$
 $\Delta > 0$
 $m=-2 \quad 2n^2 + \epsilon n + 2 = 0$
 $(2)^2 - \epsilon(2)(2) > 0$
 $\Delta > 0$

$$n^2 - 2n + 1 = 0 \quad P = \frac{c}{a} = 1$$

$$\alpha \beta = 1 \quad \beta(\alpha \beta) = 1 \quad \beta = \frac{1}{\alpha} \Rightarrow \frac{1}{\alpha} \times \frac{1}{\alpha} \times \alpha = 1 \Rightarrow \alpha = 1$$

$$S = \alpha + \beta = -\frac{b}{a} \Rightarrow \frac{m}{1} = m \Rightarrow \frac{9 \times 1}{1} + \frac{1 \times 1}{1} = \frac{10}{1}$$

$$b = -\frac{c}{a} \quad n^2 - \frac{10}{1}n + 1 = 0 \Rightarrow \left(-\frac{10}{1}\right)^2 - 4(1)(1) > 0$$

$$\alpha = 1$$

$$\Delta > 0$$

$$S = \alpha + \beta = 1 + \beta = 10 \Rightarrow S = -\frac{b}{a} = 10 \Rightarrow 1 + \beta = 10 \Rightarrow \beta = 9$$

$$\Rightarrow \beta = 9 \Rightarrow \alpha = 1$$

$$P = \alpha \cdot \beta = 1 \times 9 = 9 \quad P = \frac{c}{a} = 9 \Rightarrow \frac{m}{1} = 9 \Rightarrow m = 9$$

$$n^2 - 10n + 9 = 0 \Rightarrow 10^2 - 4(1)(9) > 0 \Rightarrow \Delta > 0$$

$$\alpha^2 + \frac{1}{\alpha^2} \Rightarrow \left(\alpha + \frac{1}{\alpha}\right)\left(\alpha^2 + \frac{1}{\alpha^2} - 2\right)$$

$$\Rightarrow S = -\frac{b}{a} = 10 \quad P = \frac{c}{a} = 9 \Rightarrow \alpha = \frac{1}{\beta}, \beta = \frac{1}{\alpha}$$

$$(\alpha + \beta)(\alpha^2 + \beta^2 - 2) = (10)(10 - 2 \cdot 9 - 2) = 10(10 - 18 - 2) = 10(-10) = -100$$

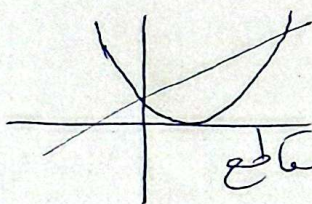
$$h_{\max} - \frac{\Delta}{4a} = -\frac{((0)^2 - 4(-1)(0))}{4(-1)} = \frac{-0}{-4} = 0$$

$$= 0 \Rightarrow -1 \cdot t^2 + 0 \cdot t - 1 = 0 \Rightarrow -t^2 - 1 = 0 \Rightarrow t^2 = -1$$

$$-1 \cdot t^2 + 0 \cdot t - 1 = 0 \Rightarrow t^2 - 0 \cdot t - 1 = 0 \Rightarrow (t)(t - 0) = 0$$

$$t = 0 \quad \text{أو} \quad t = 0$$

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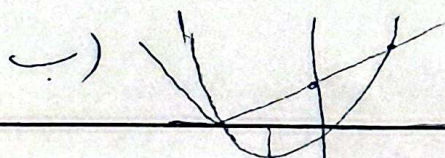


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$$(n-1)^2 = 2n+1 \Rightarrow n^2 - 2n = 0$$

$$\Rightarrow (n)(n-2) = 0 \Rightarrow n = 0, 2$$

$$\Rightarrow \begin{bmatrix} 1 \\ 2 \end{bmatrix}, \begin{bmatrix} 0 \\ 1 \end{bmatrix}$$



$$n^2 + 2n = (n+1)^2$$

$$n \geq 1 \quad n^2 + 2n - 1 = 0 \quad n = \frac{-2 \pm \sqrt{4 + 4}}{2} = \frac{-2 \pm 2\sqrt{2}}{2} = -1 \pm \sqrt{2}$$

$$n < 1 \quad n^2 + 2n + 1 = 0 \Rightarrow n = -1$$

$$\Rightarrow \begin{bmatrix} 1 \\ -1 \end{bmatrix}, \begin{bmatrix} -1 \\ 0 \end{bmatrix}$$

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