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$$y: -x^2 + bx = 3$$

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سوال ۱

$$\frac{-\Delta}{\epsilon a} = v \rightarrow \frac{-b^2 + 12}{-4} = v \rightarrow b^2 + 12 \rightarrow \boxed{b = \pm 4}$$

$$\text{الف) } f(x) = x^2 + 2x^2 + 3$$

سوال ۲

$$\Rightarrow x^2 + 2x^2 + 3 \xrightarrow{x=t} t^2 + 2t + 3 = 0$$

$$\Delta = 4 - 12 = -8 < 0 \quad \text{ریشه نامرئی ندارد} \quad \epsilon - 12 = -12 \leftarrow b^2 - 4ac$$

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$$\text{ب) } f(x) = (x - x^2)^2 - 2(\epsilon - x^2) - 15 = 0$$

$$\xrightarrow{x=t} t^2 - 2t - 15 = (t - 5)(t + 3) = 0$$

$$t = 5 \rightarrow \epsilon - x^2 = 5 \rightarrow x^2 = -1 \rightarrow x$$

$$t = -3 \rightarrow \epsilon - x^2 = -3 \rightarrow x^2 = 2 \rightarrow x = \pm \sqrt{2}$$

$$\epsilon x^2 - 14x + m = 0$$

سوال ۳

$$\alpha + \beta = \frac{14}{\epsilon} = 4 \rightarrow \frac{-b}{a}$$

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$$\alpha = \beta + 2 \rightarrow \beta + 2 + \beta = 4 \rightarrow 2\beta = 2 \rightarrow \beta = 1, \alpha = 3$$

$$P = \frac{m}{k} \rightarrow 3 \times 1 = \frac{m}{\epsilon} \rightarrow \boxed{m = 12}$$

$$\epsilon x^2 - 14x + 12 = 0 \rightarrow \boxed{\Delta > 0}$$

$$3x^2 - 4x + m - 1 = 0 \quad 2x - \beta = 4 \quad \text{سوال (ع)}$$

$$\frac{1}{4}(\alpha + \beta) + \frac{3}{4}(\alpha - \beta) = 4 \quad \frac{1}{4}\alpha + \frac{1}{4}\beta + \frac{3}{4}\alpha - \frac{3}{4}\beta = 4$$

$$\rightarrow \alpha - \beta = 2$$

$$\alpha - \beta = \frac{\sqrt{\Delta}}{|a|} \Rightarrow \frac{\sqrt{16 - 12(m-1)}}{1} = 2 \quad \text{تكون}$$

$$16 - 12(m-1) = 4 \rightarrow m-1 = 1 \rightarrow m = 2 \quad \checkmark$$

$$16 - 12(m-1) = 4 \rightarrow m-1 = 1 \rightarrow m = 2$$

$$-mx^2 + 4x + m^2 - 2 = 0 \quad \text{سوال (د)}$$

$$\Delta > 0 \rightarrow 16 - 4(-m)(m^2 - 2) > 0 \quad 16 + 4m^3 - 8m > 0$$

$$p \geq 1 \rightarrow \frac{m^2 - 2}{-m} = 1 \rightarrow m^2 + m - 2 = 0$$

$$(m+2)(m-1) = 0$$

$$\boxed{m = 1} \quad \Delta > 0 \quad \checkmark$$

$$\boxed{m = -2} \quad \Delta = 0 \quad \times$$

سوال (ف)

$$x^2 - mx + 3 = 0$$

$$\alpha\beta = 3 \rightarrow (\alpha/\beta)(\beta) = 3 \rightarrow \beta = \frac{3}{\alpha}$$

$$\alpha = \frac{4}{3}$$

$$m = \frac{4}{3} + \frac{3}{4} = \frac{16+9}{12} = \frac{25}{12} \rightarrow x^2 - \frac{25}{12}x + 3 = 0 \rightarrow \Delta > 0 \quad \checkmark$$

$$m^2 = \epsilon m + m^2 \quad m = \alpha \beta \rightarrow 1 \times 2^3 \quad (\text{سوال ٧})$$

$$\alpha + \beta = \epsilon \quad \alpha = \epsilon \beta \quad \epsilon \beta = \epsilon \rightarrow \beta = 1 \quad (\text{سوال ٧})$$

$$m^2 = \epsilon m + \epsilon \rightarrow \Delta > 0 \quad \checkmark$$

$$m^2 = \sqrt{2} + \epsilon \quad \alpha^3 + \frac{1}{\alpha^3} \quad (\text{سوال ٨})$$

$$\alpha^2 - \epsilon + \frac{\epsilon}{\alpha^2} \Rightarrow \left(\alpha + \frac{\epsilon}{\alpha} \right)^2 - \epsilon = \epsilon^2 - \epsilon = \epsilon^3$$

$$\left(\alpha^3 + \frac{1}{\alpha^3} \right) \Rightarrow \left(\alpha + \frac{\epsilon}{\alpha} \right) \left(\alpha^2 - \epsilon + \frac{\epsilon}{\alpha^2} \right) = 3 \quad (\text{سوال ٨})$$

$$\alpha + \frac{\epsilon}{\alpha} \Rightarrow \frac{\alpha^2 + \epsilon}{\alpha} = \frac{\sqrt{2} \alpha - \epsilon \alpha^2}{\alpha} = \sqrt{2}$$

$$\alpha^2 + \frac{\epsilon}{\alpha^2} \leftarrow \alpha^2 = \sqrt{2} \alpha - \epsilon \left(\alpha + \frac{\epsilon}{\alpha} \right)^2$$

$$h(t) = -1 \cdot t^2 + 5 \cdot t \quad \left\{ \begin{array}{l} \frac{-50}{-2} = \frac{25}{1} \rightarrow t \quad (\text{سوال ٩}) \\ -1 \cdot \left(\frac{50}{2} \right) + 5 \cdot \left(\frac{50}{2} \right) \rightarrow \frac{1250}{2} \end{array} \right.$$

زمانه $-1 \cdot t + (t-5) = 0$ $\left. \begin{array}{l} t=0 \\ t=5 \end{array} \right\} \checkmark$

مختصات $h \leftarrow \frac{1250}{2}$

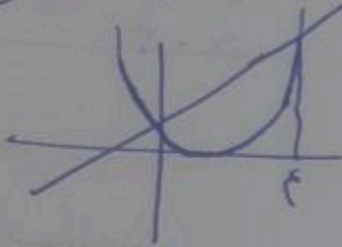
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الف) $(n-1)^2 = 2n+1$

حل (١٠)

$$\frac{n}{y} \mid \begin{array}{c} 0 \\ 1 \\ -1 \end{array} \quad \begin{array}{c} -1 \\ 1 \\ 0 \end{array}$$



$$n^2 - 2n + 1 = 2n + 1 \Rightarrow 2n + 1$$

$$n^2 - \epsilon n = 0 \rightarrow n(n - \epsilon) = 0$$

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$$n^2 + n - 2 = 0 \quad n = 1, -2$$

ب) $n^2 + 4n = |n+2| \rightarrow n+2 = -n^2 - 4n$
 $n(n+2)$

$$n^2 + 4n + 2 = 0 \rightarrow n = -2, -1$$

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