

$$y = -n^2 + bn + c$$

سوال ۱

$$S_{max} = 7 \rightarrow -\frac{\Delta}{2a} = 7 \rightarrow -\Delta = 14 \rightarrow b^2 - 4(-1)(c) = 14 \rightarrow b^2 = 14 \rightarrow b = \pm \sqrt{14}$$

$$f(x) = x^2 + 2x + 3 \rightarrow x^2 + 2x + 3 = 0$$

سوال ۲

$$f(x) = (x^2 - 1)^2 - 2(x^2 - 1) - 1$$

$$(x^2 - 1)^2 - 2(x^2 - 1) - 1 = 0 \rightarrow (t - 1)^2 - 2(t - 1) - 1 = 0 \rightarrow (t - 1)(t + 3) = 0$$

$$t - 1 = 0 \rightarrow x^2 = 1 \rightarrow x = \pm 1$$

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

$$5n^2 - 14n + m = 0$$

سوال ۳

$$\alpha + \alpha + 2 = \frac{14}{5} \rightarrow 2\alpha + 2 = \frac{14}{5} \rightarrow \alpha = 1 \rightarrow \alpha + 2 = 3$$

$$\frac{c}{f} = 13x + 1 \rightarrow m = 12 \rightarrow 5n^2 - 14n + 12 = 0$$

$$3n^2 - 4n + m - 1 = 0 \rightarrow 2\alpha - \beta = 5$$

سوال ۴

$$\alpha + \beta = 2 \rightarrow \alpha = \frac{5 + \beta}{2}$$

$$\left(\frac{5 + \beta}{2} + \beta \right) = 2 \rightarrow 5 + 3\beta = 4 \rightarrow \beta = -\frac{1}{3} \rightarrow \alpha = \frac{13}{6}$$

$$\frac{m - 1}{2} = 0 \rightarrow m - 1 = 0 \rightarrow m = 1$$

$$-m x^2 + 5x + m^2 - 2 = 0$$

سوال ۵

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

$$\Delta > 0 \rightarrow 14 = 5(-m)(m^2 - 2) > 0$$

$$m = -2 \rightarrow m = 1$$

$$Arman \quad 14 + 5(m^2 - 1)m > 0 \rightarrow m^2 - 2m + 5 > 0 \rightarrow 1 - 4 < 0 \rightarrow \checkmark$$

$$m = -2 \rightarrow -1 + 5 + 5 > 0 \rightarrow \checkmark$$

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

سوال ۷:

$$\alpha \sim \beta \quad \alpha + \beta = \epsilon = +1$$

$$\beta = 1 \quad \alpha = 1 \rightarrow \alpha = 1 \quad \beta = 1$$

$$\frac{\epsilon}{a} = \frac{m}{1} = \alpha\beta = 1 \times 1 \Rightarrow m = 1$$

$$x^2 - vx + 1 = 0 \quad \alpha^2 + \frac{1}{\alpha^2} \Rightarrow (\alpha + \frac{1}{\alpha})(\alpha - \frac{1}{\alpha}) = -1$$

سوال ۸:

$$\alpha\beta = 1 \rightarrow \beta = \frac{1}{\alpha} \quad \alpha^2 + \frac{1}{\alpha^2} = (\alpha + \frac{1}{\alpha})^2 - 1$$

$$\alpha + \frac{1}{\alpha} = +1$$

$$\Rightarrow (1) \left((1)^2 - 1 - 1 \right) = -1$$

$$h(t) = -10t^2 + \omega_0 t \rightarrow -\frac{b}{2a} = \frac{-\omega_0}{-10 \times 2} = \frac{\omega_0}{20}$$

سوال ۹:

$$h_{max} = -10 \left(\frac{\omega_0}{20} \right)^2 + \omega_0 \times \frac{\omega_0}{20} = \frac{\omega_0^2}{20}$$

$$0 = -10t^2 + \omega_0 t \rightarrow -10t(t - \omega_0) = 0$$

$$t = 0 \quad t = \omega_0 \quad \checkmark$$

$$(x-1)^2 = 2x+1$$

$$x = -\frac{1}{2}$$

$$x = 0 \quad y = 1$$

$$x = 1 \quad y = 9$$

$$x = 2 \quad y = 1$$

$$x = 3 \quad y = 9$$

$$x = 4 \quad y = 1$$

$$x = 5 \quad y = 9$$

$$x = 6 \quad y = 1$$

$$x = 7 \quad y = 9$$

$$x = 8 \quad y = 1$$

$$x = 9 \quad y = 9$$

$$x = 10 \quad y = 1$$

$$x = 11 \quad y = 9$$

$$x = 12 \quad y = 1$$

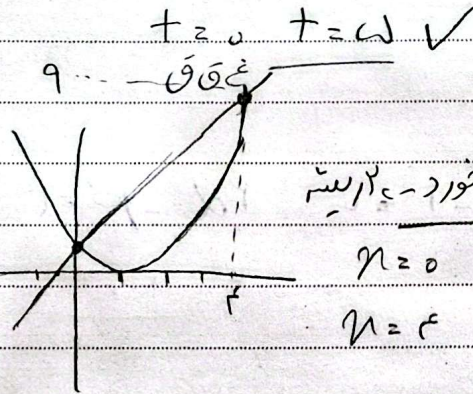
$$x = 13 \quad y = 9$$

$$x = 14 \quad y = 1$$

$$x = 15 \quad y = 9$$

$$x = 16 \quad y = 1$$

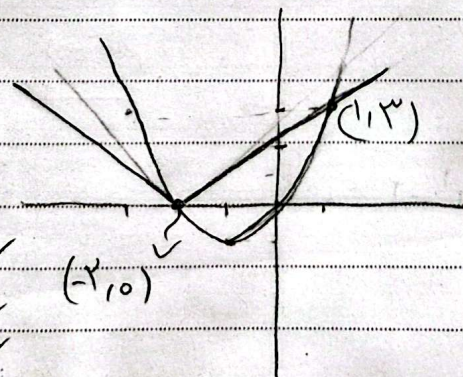
$$x = 17 \quad y = 9$$



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$$n = 0 \quad y = 1$$

$$n = 1 \quad y = 9$$



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$$-\frac{b}{2a} = \frac{-1}{-2} = \frac{1}{2} \Rightarrow y = 1 - \frac{1}{2} = \frac{1}{2}$$

$$x^2 - 2x + 1 = x + 1$$

$$x^2 - 3x + 1 = 0 \rightarrow x = -1 \quad \checkmark$$

$$x = +1 \quad \checkmark$$

$$x \leq -1 \rightarrow x^2 + 3x + 1 = 0 \rightarrow x = -1 \quad \checkmark$$

$$x = -1 \quad \checkmark$$

$$x = -1 \quad \checkmark$$

$$x = -1 \quad \checkmark$$