

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

$$1 = -\left(\frac{b}{2}\right)^2 + b\left(\frac{b}{2}\right) + 3 \rightarrow -\frac{b^2}{4} + \frac{2b^2}{4} + 3 = 1 \rightarrow \frac{b^2}{4} = 2 \rightarrow b = \pm 2$$

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$$x^2 = t \rightarrow t^2 + 2t + 3 = 0$$

$$\Delta < 0 \rightarrow t \text{ جواب ندارد}$$

$$4 - x^2 = t \rightarrow t^2 - 2t - 15 = 0$$

$$\rightarrow (t-5)(t+3) = 0 \rightarrow t = 5, -3$$

$$4 - x^2 = 5 \rightarrow x^2 = -1 \rightarrow \text{جواب ندارد}$$

$$4 - x^2 = -3 \rightarrow x^2 = 7 \rightarrow x = \pm \sqrt{7}$$

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$$\text{ریشه ها: } \alpha, \alpha+2 \rightarrow S = 2\alpha+2 = -\frac{b}{a} \Rightarrow 2\alpha+2 = 4$$

$$\rightarrow \alpha = 1, \alpha+2 = 3 \rightarrow P = (\alpha)(\alpha+2) = 3 \Rightarrow \frac{C}{a} = 3 \rightarrow \frac{m}{4} = 3$$

$$\Rightarrow m = 12$$

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$$2\alpha - \beta = 4 \rightarrow \beta = 2\alpha - 4 \rightarrow S = 2\alpha - 4 + \alpha = -\frac{b}{a} \Rightarrow 3\alpha - 4 = 2$$

$$\rightarrow \alpha = 2, \beta = 0 \rightarrow P = \alpha\beta = \frac{m-1}{3} \rightarrow P = 0 = \frac{m-1}{3} \Rightarrow m = 1$$

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$$\beta = \frac{1}{\alpha} \Rightarrow P = \alpha\beta = 1 \rightarrow \frac{m^2-2}{-m} = 1 \rightarrow m^2 + m - 2 = 0 \rightarrow (m+2)(m-1) = 0$$

$$\rightarrow m = 1, -2 \text{ / } \frac{m-2}{m} \Rightarrow 2x^2 + 2x + 2 = 0 \quad \Delta = 0 \rightarrow \text{ریشه دارم} \quad \times$$

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$$\textcircled{m=1} \rightarrow -x^2 + 2x - 1 = 0 \quad \Delta > 0 \quad \checkmark$$

$$\alpha \beta^r = (p) \beta = r \rightarrow p = \frac{c}{a} = r \rightarrow r \beta = r \rightarrow \beta = \frac{r}{r}$$

$$\alpha \beta = r \rightarrow \frac{r}{r} \alpha = r \rightarrow \alpha = \frac{r}{r} \rightarrow S = \alpha + \beta = \frac{r}{r} + \frac{r}{r} = \frac{r+r}{r}$$

$$\rightarrow m = \frac{r+r}{1r} = -\frac{b}{a}$$

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$$\beta = r \alpha \rightarrow S = r \alpha = -\frac{b}{a} \rightarrow r \alpha = r \rightarrow \alpha = 1, \beta = r$$

$$p = \alpha \beta = r \rightarrow \frac{c}{a} = r \rightarrow m = r$$

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$$\alpha^r + \frac{1}{\alpha^r} = \alpha^r + \frac{1}{\alpha^r} \beta^r = \alpha^r + \beta^r = S^r - r p S$$

$$\left. \begin{array}{l} p = r \\ S = v \end{array} \right\} S - r p S = r \frac{r}{r} - r \frac{r}{r} = r_0$$

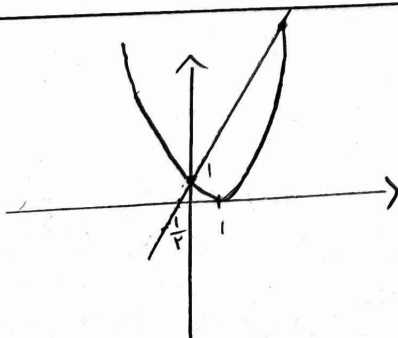
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$$x_{\max} = -\frac{b}{ra} = \frac{\omega_0}{r_0} = \frac{\omega}{r} \rightarrow y_{\max} = -1.0 \left( \frac{\omega}{r} \right)^2 + 0.0 \left( \frac{\omega}{r} \right) = 12\omega - \frac{120.0}{r}$$

$$= \frac{120.0}{r} = 421.0 \text{ m} \left\{ -1.0 t^2 + 0.0 t = 0 \rightarrow t + (0 - t) = 0 \rightarrow t = \omega \right.$$

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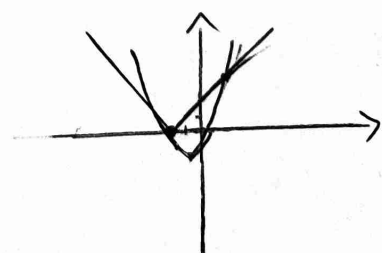
الف)



$$x = 0, 1$$

نقطه برخورد

ب)



$$x = -1, 1$$

نقطه برخورد

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