

$$y = -x^2 + bx + 3 \quad y = -\frac{\Delta}{4a} = \frac{4ac - b^2}{-4} = \frac{-12 - b^2}{-4} = 1 \rightarrow -21 = -12 - b^2$$

$$\rightarrow b^2 = 9 \rightarrow b = \pm 3$$

(۵)

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الف) $f(x) = x^2 + 2x + 3 = (x^2 + 1) + 2 \geq 0 + 2 = 2 > 0 \rightarrow$ همیشه برقرار برای هر $x \in \mathbb{R}$ می‌باشد

(۵)

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ب) $f(x) = (1 - x^2)^2 - 2(1 - x^2) - 15 \xrightarrow{1 - x^2 = t} t^2 - 2t - 15 = 0 \quad \begin{matrix} t = 5 \\ t = -3 \end{matrix}$

$t = 5 \rightarrow 1 - x^2 = 5 \rightarrow x^2 = -4$ غلط

$t = -3 \rightarrow 1 - x^2 = -3 \rightarrow x^2 = 4 \rightarrow x = \pm 2$

ریشه ها: $\alpha, \alpha + 1 \xrightarrow{\beta} S = 2\alpha + 1 = -\frac{b}{a} = 4 \rightarrow 2\alpha = 3 \rightarrow \alpha = 1.5$
 $P = \alpha^2 + \alpha \xrightarrow{\beta} P = 1 + 1 = 2 \rightarrow \alpha + 1 = 2 \rightarrow \beta = 1$

(۱,۷۵)

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$P = \frac{c}{a} = 3 = \frac{m}{4} \rightarrow m = 12$

$4x^2 - 14x + 12 = 0 \rightarrow \Delta > 0 \checkmark$

$2x^2 - 9x + m - 1 = 0 \quad \begin{matrix} S = \frac{9}{2} = 4.5 \\ P = \frac{m-1}{2} \end{matrix}$

$2\alpha - \beta = 4 \rightarrow \beta = 4 - 2\alpha$

$S = \alpha + \beta = \alpha + 4 - 2\alpha = 4.5 \rightarrow -\alpha = 0.5 \rightarrow \alpha = -0.5 \rightarrow \beta = 4 - 2(-0.5) = 5$

(۱,۷۵)

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

$2x^2 - 9x + 0 = 0 \rightarrow \Delta > 0 \checkmark$

$-mx^2 + 4x + m^2 - 1 = 0 \rightarrow \frac{c}{a} = 1 \rightarrow m^2 - 1 = -m \rightarrow m^2 + m - 1 = 0 \quad \begin{matrix} m = -2 \\ m = 1 \end{matrix}$

$m = -2 \rightarrow 2x^2 + 4x + 3 = 0 \rightarrow \Delta < 0 \rightarrow$ معادله ندارد $\times$

(۵)

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$m = 1 \rightarrow -x^2 + 4x - 1 = 0 \rightarrow \Delta > 0 \rightarrow$ معادله دارد $\checkmark$

$$\alpha B = F \rightarrow \alpha B = F \rightarrow B = \frac{F}{\alpha} \rightarrow \alpha \frac{F}{\alpha} = F \rightarrow \alpha = \frac{F}{F} = 1$$

$$x^r - m x + r = 0$$

$$p = r$$

$$S = \frac{F}{r} + \frac{1}{r} = \frac{14 + 2V}{12} = \frac{F}{12} \rightarrow x^r - \frac{F}{12} x + r = 0 \rightarrow m = \frac{F}{12}$$

$$x^r - \frac{F}{12} x + r = 0 \rightarrow \Delta > 0 \checkmark$$

1, 1, 0

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$$x^r - F x + m = 0 \rightarrow \alpha, r \alpha : \begin{cases} S = F \alpha = F \rightarrow \alpha = 1 \rightarrow \beta = r \alpha = r \\ p = m = 1 \times r \rightarrow m = r \end{cases}$$

$$x^r - F x + r = 0 \rightarrow \Delta > 0 \checkmark$$

1, 1, 0

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$$x^r - V x + r = 0 \rightarrow \alpha^r + r = 0 \rightarrow \alpha^r = -r \rightarrow \alpha = \sqrt[r]{-r} \rightarrow \alpha + \frac{r}{\alpha} = V$$

$$\left(\alpha + \frac{r}{\alpha}\right)^r = \alpha^r + \frac{1}{\alpha^r} + r \alpha \cdot \frac{r}{\alpha} \left(\alpha + \frac{r}{\alpha}\right) \rightarrow V^r = \alpha^r + \frac{1}{\alpha^r} + r \times r \times V$$

$$r \times r = \alpha^r + \frac{1}{\alpha^r} + r r \rightarrow \alpha^r + \frac{1}{\alpha^r} = r r - r r = 0$$

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$$h(t) = -1.6t^r + \omega_0 t \rightarrow 0 = -1.6t^r + \omega_0 t \rightarrow 1.6t^r = \omega_0 t$$

لنفرض $t = 0$
 $t = \omega_0$

$$x_{max} = \frac{-\omega_0}{-r} = \frac{\omega_0}{r} \rightarrow y_{min} = -1.6 \times \frac{\omega_0^2}{r^2} + 1 \times \omega_0 = -4r\omega_0 + 1\omega_0 = 4r\omega_0$$

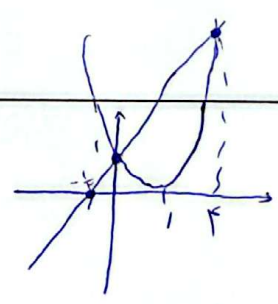
max ارتفاع

5

9

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

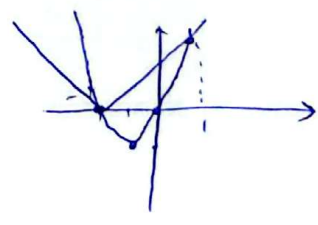
$$y = r x + 1 \rightarrow (0, 1) \quad (-1, 0)$$



$$x = 0$$

$$x = r$$

$$x^r + r x = |x + r|$$



$$x = -r$$

$$x = 1$$

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$$x^r + r x = 0$$

$$x(x + r) = 0 \rightarrow \begin{cases} x = 0 \\ x = -r \end{cases} \quad y = -1$$