

$$y^2 - x^2 + by + c$$

$$\text{max} \left| \frac{-b}{2a} \right| \rightarrow -\frac{b^2 + 12}{-4} \geq 7 \Rightarrow b^2 + 12 \geq 28 \\ \Rightarrow b^2 \geq 16 \Rightarrow b \geq \pm 4$$

۱

جواب: نه‌ارر $\rightarrow \Delta < 0 \rightarrow x^2 + 2x + 3 \xrightarrow{x^2 \neq 0} x^2 + 2x + 3 \rightarrow \Delta < 0$

$$b) f(x) = (x - x^2)^2 - 2(x - x^2) - 10 \xrightarrow{(x - x^2) = T} T^2 - 2T - 10$$

$$= (T - 5)(T + 2) \begin{cases} -x^2 - 1 \geq 0 \Rightarrow x^2 \leq -1 \\ -x^2 + 7 \geq 0 \Rightarrow x^2 \leq 7 \end{cases} \Rightarrow \boxed{x \in \pm \sqrt{7}}$$

۲

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

$$\hookrightarrow S = x_1 + x_2 = x_1 + (x_1 + 2) = 2 \Rightarrow \boxed{x_1 = 1, x_2 = 3}$$

$$P = \frac{m}{f} = x_1 x_2 \Rightarrow \frac{m}{f} = 3 \Rightarrow \boxed{m = 12}$$

۳

$$2x^2 - 9x + m - 1 = 0 \rightarrow S = \frac{-b}{a} = 2$$

$$\hookrightarrow 2a - B = f \rightarrow 2a + 2B - 2B = f$$

$$\Rightarrow f - 2B = f \Rightarrow B = 0, \alpha = 2$$

$$\Rightarrow m - 1 = 0 \Rightarrow \boxed{m = 1}$$

۴

$$-mx^2 + fx + m^2 - 2 = 0 \Rightarrow B = \frac{1}{\alpha}$$

$$P = \alpha \times \frac{1}{\alpha} = 1 = \frac{m^2 - 2}{-m} \Rightarrow m^2 - 2 + m = 0 \begin{cases} m = -2 \\ m = 1 \end{cases}$$

$$m = -2 \rightarrow 2x^2 + fx + 2 = 2(x^2 + 2x + 1) = 2(x + 1)^2 \rightarrow x = -1$$

$\textcircled{m=1} \rightarrow -x^2 + fx - 1 = 0 \rightarrow \Delta > 0 \rightarrow$ ریشه‌های متمایز -
در بیش و مضاعف -

۵

$$\begin{aligned}
 q^r - m + r = 0 &\rightarrow \alpha B = r \Rightarrow \alpha B = r \Rightarrow (\alpha B)/B = r \\
 &\Rightarrow r B = r \Rightarrow B = \frac{r}{r} \rightarrow \frac{19}{9} = \frac{r}{r} m + r = 0 \\
 &\Rightarrow \frac{19 + 2V}{9} = \frac{r}{r} m \rightarrow m = \frac{r}{19}
 \end{aligned}$$

$$\begin{aligned}
 q^r - f + m = 0 &\rightarrow S = \alpha + B = r \Rightarrow \alpha = 1 \\
 &\rightarrow 1 - f + m = 0 \Rightarrow \boxed{m = 3}
 \end{aligned}$$

$$\begin{aligned}
 q^r - V + r = 0 &\rightarrow P = \alpha B = r \rightarrow \alpha = \frac{r}{B} \Rightarrow \alpha^r = \frac{A}{B^r} \\
 \alpha^r + \frac{A}{\alpha^r} &= \alpha + B = S = r \Rightarrow P = \boxed{r = 1}
 \end{aligned}$$

$$\begin{aligned}
 h(t) = -l \cdot t^r + d \cdot t &\rightarrow h = 0 \rightarrow -l \cdot t^r + d \cdot t = 0 \Rightarrow -l \cdot t(t - d) \\
 &\rightarrow t = 0, t = d \rightarrow \text{نقطه شروع و ختم}
 \end{aligned}$$

$$y_{max} = \frac{-\Delta}{4a} = -\frac{12\Delta}{r} + 15\delta = \frac{15\delta}{r} \rightarrow h_{max}$$

$$\text{الف) } (q-1)^r = r q + 1 \rightarrow$$

$$q^r + r q = |q + r|$$

