

$$21: \beta, 3\beta \rightarrow P: 3\beta^2: \frac{15}{3} \Rightarrow \beta^2: \frac{5}{3} \Rightarrow \beta: \pm \frac{\sqrt{15}}{3} \quad \text{8, } \beta, 3\beta, 3\beta$$

$$\left. \begin{aligned} B: \frac{2}{3} \Rightarrow 8: 4\beta, \frac{1}{3}, \frac{a}{3} \Rightarrow \alpha = 1 \\ \beta: -\frac{2}{3} \Rightarrow 8: 2\beta, -\frac{1}{3}, \frac{a}{3} \Rightarrow \alpha = -1 \end{aligned} \right\} \quad 1 - (-1) = 14$$

$$\omega \frac{1}{4}, \alpha, \beta \rightarrow P: \alpha\beta, \frac{1}{36} \rightarrow \frac{1}{\sqrt{\alpha}} + \frac{1}{\sqrt{\beta}} = \omega$$

$$\Rightarrow \frac{\sqrt{\alpha} + \sqrt{\beta}}{\sqrt{\alpha\beta}} = \frac{\sqrt{\alpha} + \sqrt{\beta}}{\sqrt{\frac{1}{36}}} = \omega \Rightarrow \sqrt{\alpha} + \sqrt{\beta} = \frac{\omega}{4} \xrightarrow{\text{مربع}} \alpha + \beta + 2\sqrt{\alpha\beta} = \frac{\omega^2}{16}$$

$$\rightarrow \alpha + \beta = \frac{13}{36} \rightarrow 8: \frac{m+12}{36}: \frac{13}{36} \Rightarrow m = -1 \quad \left\{ \begin{aligned} -21^2 + 36\alpha + 12 &= 0 \\ P: \frac{2}{-1} = -2 \end{aligned} \right.$$

$$\begin{aligned} \text{بسیار ساده} \Rightarrow \left\{ \begin{aligned} 15\alpha^2 + 12\alpha^2 - 9\alpha - 2 &= 0 \\ 15\beta^2 + 12\beta^2 - 9\beta - 2 &= 0 \end{aligned} \right\} \xrightarrow{\text{جمع}} \left\{ \begin{aligned} 30(\alpha^2 + \beta^2) + 12(\alpha^2 + \beta^2) - 9(\alpha + \beta) - 4 &= 0 \\ 8: 30\beta^2 \quad 8: 12\beta^2 \quad 8 \end{aligned} \right. \\ \Rightarrow 4(V) + 12(K) - 9 - 2 = 0 \Rightarrow 4\lambda + 12\kappa - 11 = 0 \Rightarrow \kappa = -\frac{1}{4}\omega \quad (\kappa = -\frac{1}{4}\omega)$$

$$8: \alpha + \beta = -4 \rightarrow \beta = -4 - \alpha \quad 3\alpha^2 + 12\beta^2 = \alpha^2 + 12(\alpha^2 + 8\alpha + 16) =$$

$$\alpha^2 + 12(8 - 2\alpha) = \alpha^2 + 12(16 - 2\alpha\beta) \xrightarrow{\beta = -4 - \alpha} \alpha^2 + 12 + 12\alpha + 12\alpha^2 + 24\alpha = \omega\alpha^2 + 24\alpha + 12 = 12\sqrt{2} + 12$$

$$\Rightarrow \omega\alpha^2 + 24\alpha - 12\sqrt{2} - 12 = 0 \rightarrow \alpha = \frac{-24 \pm (24 + 4\sqrt{2})}{2} \quad \alpha < 0 \rightarrow \alpha = \frac{-20 - 4\sqrt{2}}{2}$$

$$\beta = -4 - \left(\frac{-20 - 4\sqrt{2}}{2} \right) = -1 + \frac{12\sqrt{2}}{2}$$

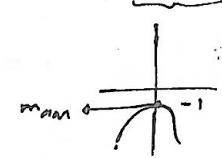
$$\rightarrow P: \alpha \rightarrow \alpha = \alpha\beta = \left(\frac{-20 - 4\sqrt{2}}{2} \right) \left(-1 + \frac{12\sqrt{2}}{2} \right) = \frac{10\sqrt{2} - 40\sqrt{2}}{2}$$

$$21^2 = t \rightarrow t^2 - 4t - \omega = 0 \Rightarrow t = \frac{4 \pm \sqrt{16 + 4\omega}}{2} \rightarrow \left\{ \begin{aligned} 21^2: \frac{4 - \sqrt{16 + 4\omega}}{2} \quad \times \quad 21^2 > 0 \\ 21^2: \frac{4 + \sqrt{16 + 4\omega}}{2} \quad \checkmark \end{aligned} \right.$$

$$\rightarrow 21: \pm \sqrt{\frac{4 + \sqrt{16 + 4\omega}}{2}} \rightarrow 8: \sqrt{\frac{4 + \sqrt{16 + 4\omega}}{2}} \sqrt{\frac{4 + \sqrt{16 + 4\omega}}{2}} = 0$$

$$P: \left(\sqrt{\frac{4 + \sqrt{16 + 4\omega}}{2}} \right) \left(\sqrt{\frac{4 + \sqrt{16 + 4\omega}}{2}} \right) = (4 + \sqrt{16 + 4\omega})$$

$$\rightarrow 2P^2 - 12\beta + 2\beta \Rightarrow 2P^2 = 12\left(-\frac{4 - \sqrt{16 + 4\omega}}{2} \right) = 12\left(\frac{11 + 14\sqrt{2}}{2} \right) = \omega + 12\sqrt{2}$$

۱. شرط اول : $\alpha + 0.1\omega, \beta + 0.1\omega \rightarrow f: \alpha + \beta + 1: \frac{\alpha}{r} \xrightarrow{\alpha + \beta + 1 = \frac{1}{r}} \frac{1}{r} = \frac{\alpha}{r} \Rightarrow \boxed{\alpha = 1}$ ۲. شرط دوم : $\alpha, \beta \rightarrow f: \alpha + \beta: \frac{-\alpha}{r\omega}, \frac{-1}{r}, \rho: \alpha\beta: -r$ ۱. حاصل : $(\alpha + 0.1\omega)(\beta + 0.1\omega) = \alpha\beta + 0.1\omega\alpha + 0.1\omega\beta + 0.01\omega^2 = \alpha\beta + 0.1\omega(\alpha + \beta) + 0.01\omega^2 = -r$ $\Rightarrow \frac{b}{r} = -r \Rightarrow \boxed{b = -9}$ $\rightarrow \left[\frac{(1)(-9)}{r} \right], \left[\frac{-9}{r} \right], [-1, \omega], \underbrace{-r}$	۶
$f: \alpha + \beta = \frac{\alpha}{a} = 1 \rightarrow \alpha + \beta = 1 \rightarrow \beta = 1 - \alpha$ ۴. $\beta^2 + r\alpha^2 - 2\beta + 1 = \beta(1-\alpha) + r(1-\alpha)^2 + 2\alpha^2 - 2(1-\alpha) = 1$ $\rightarrow 9\alpha^2 - 9\alpha + 1 = 0 \rightarrow 9\alpha^2 - 9\alpha + 1 = 0 \rightarrow \alpha = \frac{9 \pm \sqrt{81-36}}{18} \Rightarrow \alpha = \frac{9 \pm 2\sqrt{5}}{18}$ $\left\{ \begin{array}{l} \alpha = \frac{9 + 2\sqrt{5}}{18} \xrightarrow{\beta = 1-\alpha} \beta = \frac{9 - 2\sqrt{5}}{18} \\ \alpha = \frac{9 - 2\sqrt{5}}{18} \xrightarrow{\beta = 1-\alpha} \beta = \frac{9 + 2\sqrt{5}}{18} \end{array} \right\} \Rightarrow \alpha - \beta = \left \frac{2\sqrt{5}}{9} \right = \frac{2\sqrt{5}}{9}$	
۱. شرط اول : $\beta, \beta + r \Rightarrow \beta + r - \beta = r \rightarrow \frac{\sqrt{D}}{ a } = r \rightarrow \frac{\sqrt{a^2 - 4a}}{1} = \frac{\sqrt{(a-2)^2}}{1} : a-2 = r$ $\rightarrow a - 2 = \pm r \rightarrow \begin{cases} a = 3 \checkmark \\ a = -1 \times \end{cases}$ چون در شرطی مستند ضرب آن ما مثبت است پس $\alpha > 0$ باشد $\Rightarrow \rho, \frac{a}{1} = 3$ $a^2 - (3a+1)a + b = 0 \xrightarrow{a=3} a^2 - 10a + b = 0 \rightarrow \frac{\sqrt{D}}{ a } = r \rightarrow \sqrt{100 - 4b} = r$ $\rightarrow 2b = 94 \rightarrow b = 47 \Rightarrow \rho, \frac{b}{1} = 47 \Rightarrow 47 - 3 = \boxed{44}$	۸
$\alpha^2 + \beta^2: f: -2p \quad f: \frac{-b}{a}, \frac{-1}{1} = -1, \rho: \frac{c}{a}, \frac{-1-m^2}{1} = -1-m^2$ $\min f: -2p = 1 - 2(-1-m^2) \rightarrow 1 - 2(-1) = \boxed{3}$ 	۹
$e_1: \frac{-\omega + r}{r}, \frac{-r}{r} = -1, f: 1 \Rightarrow y = a(e_1 + 1)^2 + 1$ $\Rightarrow y = ae_1^2 + 2ae_1 + a + 1 \Rightarrow f: \frac{-2a}{a} = -2, \rho: \frac{a+1}{a}$ $\alpha^2 + \beta^2: f: 2p: 4 - 2\left(\frac{a+1}{a}\right) = \omega \Rightarrow \frac{-1}{r} = \frac{a+1}{a} \Rightarrow -a = r(a+1) \Rightarrow a = \frac{-r}{r+1}$ $\Rightarrow y = -\frac{r}{r+1}e_1^2 - \frac{4}{r+1}e_1 + \frac{1}{r+1} \Rightarrow$ حداکثر: $\frac{1}{r+1}$	۱۰