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$$① \alpha, \beta = 3\alpha \rightarrow 3\alpha^2 = \frac{4}{3} \rightarrow \alpha^2 = \frac{4}{9} \rightarrow \alpha = \pm \frac{2}{3}$$

$$\boxed{\alpha = -\frac{2}{3}, \beta = -2}$$

$$\alpha + \beta = -\frac{1}{3}$$

$$\boxed{\alpha = \frac{2}{3}, \beta = 2}$$

$$\alpha + \beta = \frac{1}{3}$$

$$\frac{-b}{a} = \pm \frac{1}{3} \rightarrow a = \pm 1 \rightarrow 1 \oplus 1 = 1 \quad (5)$$

$$② \sqrt{\frac{1}{\alpha}} + \sqrt{\frac{1}{\beta}} = 5 \rightarrow \frac{1}{\alpha} + \frac{1}{\beta} + 2\sqrt{\frac{1}{\alpha\beta}} = 25 \rightarrow \frac{\alpha + \beta}{\alpha\beta} = 13$$

$$\frac{1}{\frac{36}{12}} = \frac{1}{3}$$

$$\alpha + \beta = \frac{13}{36}$$

$$\boxed{m = -1} \leftarrow \frac{m+14}{36} = \frac{13}{36}$$

$$\boxed{\frac{2}{m} = -2}$$

$$③ \alpha + \beta = 1, \alpha\beta = -2 \rightarrow \alpha = 2, \beta = -1 \rightarrow \alpha = -1$$

ی تواند برعکس هم باشند

$$\boxed{K = -3} \leftarrow -2 + K + 9 - 2 = 0$$

$$④ \frac{5}{4}\alpha^2 + \frac{5}{4}\beta^2 + \frac{1}{4}\alpha^2 - \frac{1}{4}\beta^2 = 12\sqrt{5} + 18 \rightarrow \frac{5}{4}(\alpha^2 + \beta^2) + \frac{1}{4}(\alpha - \beta)(\alpha + \beta) = 12\sqrt{5} + 18$$

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$$\alpha^2 + \beta^2 = S^2 - 2P \rightarrow \frac{5}{4}(36 - 2a) + \frac{1}{4}(-4)(\sqrt{36 - 4a}) = 12\sqrt{5} + 18$$

$$S = -4, \alpha\beta = a, \alpha, \beta = \frac{-4 \pm \sqrt{16 - 4a}}{2} \rightarrow \alpha < \beta \rightarrow \alpha = -2 - \sqrt{4 - a}$$

$$4\alpha^2 + 4\beta^2 = \alpha^2 + 4(S^2 - 2P) = 12P + 18 \Rightarrow \begin{cases} 4 - 4a = 18 \rightarrow a = 1 \\ 4\sqrt{4 - a} = 12\sqrt{4 - a} \rightarrow 4\sqrt{4 - a} = 12\sqrt{4 - a} \rightarrow a = 1 \end{cases}$$

⑤ $S = 0 \rightarrow$ زیرا توان همی متغیر خارج است و هر عددی در معادله صق کند قیرینی آن نیز صق می کند.

$$x^2 = t \rightarrow t^2 - 4t - 5 = 0$$

$$x^2 = \frac{V \pm \sqrt{49}}{2}$$

$$x^2 = \frac{V + \sqrt{49}}{2} \quad (5)$$

$$P^2 = \left(\frac{V + \sqrt{49}}{2}\right)^2$$

$$2 \left(\frac{49 + 49 + 14\sqrt{49}}{4} \right) = 59 + 7\sqrt{49} = 2P^2$$

④ $\alpha, \beta \leftarrow$ ریشه های معادله اول $\rightarrow \alpha + \frac{1}{r} + \beta + \frac{1}{r}$

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$\alpha + \beta + 1 = -\frac{1}{r} \rightarrow \alpha + \beta = -\frac{r}{r}$

$\boxed{a = -3} \leftarrow \frac{a}{r} = -\frac{r}{r}$

$(\alpha + \frac{1}{r})(\beta + \frac{1}{r}) = \alpha\beta + \frac{1}{r}(\alpha + \beta) + \frac{1}{r^2} = 1$

$\frac{b}{r} + \frac{1}{r}(-\frac{r}{r}) + \frac{1}{r^2} = 1 \rightarrow \frac{b}{r} = \frac{r}{r} \rightarrow \boxed{b = 3}$

$\left[\frac{ab}{r}\right] = -3$

$r_0^r - \alpha x + b = 0 \rightarrow \begin{cases} s = \frac{a}{r} \\ p = \frac{b}{r} \end{cases}$

$r_0^r + \alpha x - 1 = 0 \rightarrow \begin{cases} s = \frac{1}{r} \rightarrow \alpha + \beta = \frac{1}{r} = \frac{a}{r} \rightarrow \alpha = 1 \\ p = -r \rightarrow b = -4 \end{cases}$

$\left[\frac{ab}{r}\right] = -1$

⑤ $r_0^r(\alpha^r + \beta^r) + r_0\beta(\beta - 1) = 1V \rightarrow s = \frac{b}{a} = 1, p = -\frac{b}{a}$

$r_0^r(1 + \frac{rb}{a}) + r_0\beta(-\alpha) \rightarrow r_0^r(1 + \frac{rb}{a} + \frac{b}{a}) = 1V$

$\frac{b}{a}$

$r_0^r(1 + \frac{rb}{a}) = 1V$

$r_0a + r_0b = 1Va \leftarrow r_0(\frac{a + rb}{a}) = 1V$

$\hookrightarrow 3a = -r_0b \rightarrow a = -r_0b \rightarrow \sqrt{\frac{a^r + fab}{|a|}} \rightarrow \sqrt{\frac{a^r + fab}{a^r}} =$

اقلان ریشه ها

$\boxed{\frac{r\sqrt{a}}{a} \leftarrow \sqrt{\frac{r}{a}}} \leftarrow \sqrt{1 + \frac{fb}{a} - \frac{1}{a}}$

⑥ $\sqrt{a^r + ra + 1 - ra} = r \rightarrow \sqrt{(a-1)^r} = r \rightarrow |a-1| = r \rightarrow a = \begin{matrix} r \\ -1 \end{matrix}$

$\alpha + \beta = -\frac{b}{a} = 3a + 1 = 10 \rightarrow \alpha + \beta = 10 \rightarrow \underline{\alpha = 4} \quad \underline{\beta = 6}$

دقیق

$b = 24 \rightarrow p = 24, a = 3 \rightarrow p = 3 \rightarrow \boxed{24 - 3 = 21}$

⑦ $\alpha^r + \beta^r = s^r - rp \rightarrow s = -1, p = -1 - m^r$

$1 + rm^r + r$

$\boxed{rm^r + 3 = 3} \leftarrow m = 0 \rightarrow \boxed{rm^r + 3}$

$$10) x_{ext} = -\frac{a+r}{r} = -1 \quad y_{ext} = 1$$

$$\frac{-b}{ra} = -1 \rightarrow b = ra \rightarrow ax^r + rax + c \rightarrow S = -r \quad p = \frac{c}{a}$$

$$r - \frac{rc}{a} = a \rightarrow \frac{rc}{a} = -1 \rightarrow \frac{c}{a} = -\frac{1}{r} \rightarrow a = -rc$$

$$c - a = 1 \rightarrow rc = 1 \rightarrow c = \frac{1}{r}$$