

$$\alpha = 2\beta \rightarrow S = 2\beta = \frac{\alpha}{2}, \quad P = 2P^2 = \frac{\alpha}{2} \rightarrow \beta^2 = \frac{\alpha}{4} \rightarrow \beta = \pm \frac{\sqrt{\alpha}}{2} \quad (1)$$

$$\beta = \frac{\sqrt{\alpha}}{2} \rightarrow \frac{1}{\sqrt{\alpha}} = \frac{\alpha}{2} \rightarrow \alpha = 2 \quad / \quad \beta = -\frac{\sqrt{\alpha}}{2} \rightarrow -\frac{1}{\sqrt{\alpha}} = \frac{\alpha}{2} \rightarrow \alpha = -2$$

$$\alpha \text{ اختلاف مقادیر} = 2 - (-2) = 4$$

$$\frac{1}{\sqrt{\alpha}} + \frac{1}{\sqrt{\beta}} = 2 \rightarrow \frac{\sqrt{\beta} + \sqrt{\alpha}}{\sqrt{\alpha\beta}} = 2 \rightarrow \sqrt{\beta} + \sqrt{\alpha} = \frac{2}{\sqrt{\alpha\beta}} \xrightarrow{\text{مربع}} \alpha + \beta + 2\sqrt{\alpha\beta} = \frac{4}{\alpha\beta} \quad (2)$$

$$\alpha + \beta = \frac{2 \cdot 2 - 12}{24} = \frac{10}{24} = \frac{5}{12} = \frac{m+1}{n} \rightarrow m = -1 \rightarrow \alpha^2 + \beta^2 + 2 = 0$$

$$\beta = 2, \alpha = -1 \rightarrow \alpha = -1 \rightarrow -1 + k + 9 - 2 = 0 \rightarrow k = -6$$

$$\beta = 2 \rightarrow 32 + 4k - 11 - 10 = 0 \rightarrow 4k = -13 \rightarrow k = -\frac{13}{4}$$

$$S = \alpha + \beta = -2, \quad \beta = -2 - \alpha, \quad P = \alpha\beta = \alpha > 0 \rightarrow \alpha \in \mathbb{R} \quad (3)$$

$$2\beta^2 + 2\alpha^2 + \alpha^2 = 2 \rightarrow 2(S^2 - 2P) + (-2\alpha - \alpha) = 2(4 - 2\alpha) - 2\alpha - \alpha = 4 - 5\alpha$$

$$-2 - 5\alpha \rightarrow 4 - 5\alpha - 2\alpha - 5\alpha = 4 - 12\alpha - 5\alpha = 4 - 17\alpha = 4 - 17(-2 - \alpha) - 5\alpha$$

$$= 4 + 34 + 17\alpha = 38 + 17\alpha \rightarrow 38 + 17\alpha = 4 - 17\alpha \rightarrow \alpha = -\frac{34}{34} = -1, \quad \beta = 1$$

$$P = \alpha = (1 - \sqrt{2})(1 + \sqrt{2}) = 1 - 2 = -1$$

$$\alpha^2 = t \rightarrow t = \frac{1 + \sqrt{2}}{2}, \quad \frac{1 - \sqrt{2}}{2} \rightarrow \alpha_1 = \sqrt{\frac{1 + \sqrt{2}}{2}} \quad (4)$$

$$\alpha_2 = -\sqrt{\frac{1 + \sqrt{2}}{2}} \quad / \quad S = 0, \quad P = -\left(\sqrt{\frac{1 + \sqrt{2}}{2}}\right)^2 \rightarrow 2P^2 - 2SP + 2S = 0$$

$$2\left(-\sqrt{\frac{1 + \sqrt{2}}{2}}\right)^2 = 2\left(\frac{1 + \sqrt{2}}{2}\right) = 1 + \sqrt{2}$$

$$r\alpha^r + a\alpha + b = 0$$

$$r\alpha^r + a\alpha - \gamma = 0$$

$$\begin{cases} \alpha' = \alpha + \frac{1}{r} \\ \beta' = \beta + \frac{1}{r} \end{cases}$$

$$\begin{cases} \alpha \\ \beta \end{cases} \rightarrow \alpha + \beta = -\frac{1}{r}, \alpha\beta = -\frac{r}{r}$$

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

$$\alpha'\beta' = \frac{b}{r} = \left(\alpha + \frac{1}{r}\right)\left(\beta + \frac{1}{r}\right) \Rightarrow \alpha\beta + (\alpha + \beta)\frac{1}{r} + \frac{1}{r^2} = -\frac{r}{r} \rightarrow \frac{b}{r} = -\frac{r}{r}$$

$$b = -r^2 \Rightarrow \begin{bmatrix} a & b \\ c & d \end{bmatrix} = \begin{bmatrix} r & -r^2 \\ 1 & r \end{bmatrix} = \begin{bmatrix} r & -r^2 \\ 1 & r \end{bmatrix}$$

$$|\alpha - \beta| = \frac{\sqrt{a}}{|a|} \quad a\alpha^r + a\alpha - b = 0 \rightarrow \alpha^r - \alpha - \frac{b}{a} = 0 \rightarrow -\frac{b}{a} = t$$

$$\alpha^r - \alpha + t = 0 \quad S = \alpha + \beta = 1, P = \alpha\beta = -\frac{b}{a} = t$$

$$\alpha^r - \alpha = -t$$

$$S^r - rP = 1 - rt$$

$$r_0\beta^r + r_0\alpha^r - r_0\beta = 1 \Rightarrow r\beta^r + \alpha^r - \beta = \frac{1}{r_0} \rightarrow \beta^r + \alpha^r + \underbrace{\beta - \beta}_{-t} = \frac{1}{r_0}$$

$$\rightarrow 1 - rt = \frac{1}{r_0} \rightarrow t = \frac{1}{r_0} \Rightarrow \alpha^r - \alpha + \frac{1}{r_0} = 0 \rightarrow |\alpha - \beta| = \frac{\sqrt{a}}{|a|} = \frac{\sqrt{1 - \frac{1}{r_0}}}{1}$$

$$\frac{r}{\sqrt{a}} = \frac{r\sqrt{a}}{a}$$

$$\alpha^r - (a+1)\alpha + a = 0 \quad \text{مجموع قدرات} \rightarrow \alpha = 1, \alpha = a$$

$$\alpha^r - a\alpha + b = 0 \rightarrow \text{زوج متکلی} \rightarrow \alpha_1 = a, \alpha_2 = r$$

25. اعداد صحیح

$$\text{ضرب} = (r \times r) - (r \times 1) = r$$

$$\alpha^r + \beta^r = S^r - rP \quad \begin{cases} S = \alpha + \beta = 1 \\ P = \alpha\beta = -1 - m^r \end{cases}$$

$$\alpha^r + \beta^r = 1 + r + rm^r = r \Rightarrow \text{کسر صفر}$$

$$\text{مجموع قدرات} \rightarrow \alpha = 1, \alpha = m$$

Arman

$$(-\alpha, y), (\alpha, y) \rightarrow -\frac{\partial \alpha^m}{\partial r} = -1 = \alpha_{\text{و}}, \quad y = 1 \quad -10$$

$$y = m(\alpha + 1)^r + 1 \rightarrow m\alpha^r + r m \alpha + m + 1 \quad / \quad p = \alpha \beta = \frac{m+1}{m}$$

$$S = \alpha + \beta = \frac{-r m}{m} = -r \quad / \quad \alpha^r + \beta^r = \alpha = S^r - r p \Rightarrow r - r p = \alpha \quad (5)$$

$$p = -\frac{1}{r} = \frac{m+1}{m} \rightarrow m = \frac{-r}{p} \rightarrow -\frac{r}{p} \alpha^r - \frac{r}{p} \alpha + \frac{1}{p} = y$$

$$y(0) = \frac{1}{p}$$

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