

$$\begin{aligned} r^n - an + f &= 0 & \alpha &= r\beta \\ \alpha\beta &= \beta \times r\beta = r\beta^2 = \frac{f}{r} \longrightarrow \beta^2 = \frac{f}{a} \longrightarrow \beta = \pm \frac{r}{\sqrt{a}} \\ \beta &= \frac{r}{\sqrt{a}} & \alpha &= \frac{r}{\sqrt{a}} \longrightarrow \alpha + \beta = \frac{1}{\sqrt{a}} = \frac{a}{\sqrt{a}} \longrightarrow a = 1 \\ \beta &= -\frac{r}{\sqrt{a}} & \alpha &= -\frac{r}{\sqrt{a}} \longrightarrow \alpha + \beta = -\frac{1}{\sqrt{a}} = \frac{a}{\sqrt{a}} \longrightarrow a = -1 \\ & \longrightarrow 1 - (-1) = 14 \end{aligned}$$

$$\begin{aligned} & \sqrt{\frac{1}{\alpha}} + \sqrt{\frac{1}{\beta}} = \Delta \\ \rightarrow & \frac{1}{\alpha} + \frac{1}{\beta} + 2\sqrt{\frac{1}{\alpha\beta}} = 2\Delta \rightarrow m+1f + 2\sqrt{\frac{1}{\frac{m+1}{p} \cdot \frac{1}{m+1f}}} = 2\Delta \\ & \frac{S}{p} \quad m+1f \quad \rightarrow m+1f = 1f \rightarrow m = -1 \\ \rightarrow & m\alpha + (m+1) = -\alpha + (m+1) = 0 \rightarrow p = \frac{1}{-1} = -1 \end{aligned}$$

$$\begin{aligned}
 & f''n^2 + kn^2 - 9n - 2 = 0 \quad \alpha + \beta = 1 \quad \alpha\beta = -2 \\
 & \rightarrow \alpha = -\beta + 1 \rightarrow \beta(1-\beta) = -2 \rightarrow \beta^2 - \beta - 2 = 0 \\
 & \rightarrow (\beta-2)(\beta+1) = 0 \quad \begin{cases} \beta=2 & \alpha=-1 \quad \checkmark \\ \beta=-1 & \alpha=2 \quad \checkmark \end{cases} \\
 & \xrightarrow{\text{جوابا}} -f + k + 9 - 2 = 0 \rightarrow k = -7
 \end{aligned}$$

$$\begin{aligned} n^2 + 4n + a &= 0 & \alpha < \beta < 0 & & r\alpha^2 + 4\beta^2 &= 12\sqrt{r} + 1\Delta \\ \rightarrow \alpha + \beta &= -4 \rightarrow \alpha &= -4 - \beta \rightarrow r\alpha^2 + r\alpha^2 + 4\beta^2 + 4r\alpha &= 12\sqrt{r} + 1\Delta \\ \rightarrow \Delta\alpha^2 + 4r\alpha - 12\sqrt{r} - 1r &= 0 \rightarrow \alpha &= \frac{-4r \pm \sqrt{16r^2 + 4\Delta\sqrt{r}}}{2\Delta} \\ \rightarrow &= \frac{-4r \pm (4 + r\sqrt{r})}{2\Delta} \alpha < 0 \rightarrow &= \frac{-4r - 4 - r\sqrt{r}}{2\Delta} = -r - 2\sqrt{r} \\ \rightarrow \beta &= -4 - \alpha \rightarrow \alpha\beta &= a = (-r - 2\sqrt{r})(-r - 2\sqrt{r}) = 9 - 1 = 1 \end{aligned}$$

$n^2 - v n^2 - \Delta = 0$ 5 $2p^2 - 3sp + 2s = ?$
 $n^2 = t \rightarrow t^2 - vt - \Delta = 0 \rightarrow t = \frac{v \pm \sqrt{49}}{2} \rightarrow$ یکی رابطه t منفی دیکه
 مثبت است پس n^2 دو رابطه
 هم شکل و قرینه دارد.
 $(\text{ریشه ها}) = \pm \sqrt{\frac{v + \sqrt{49}}{2}}$
 $2p^2 - 3s + 2s = 2p^2 = x \cdot x - \left(\frac{v + \sqrt{49}}{2} \right) = -v - \sqrt{49}$

$2x^2 - ax + b = 0 \rightarrow \alpha, \beta$ $2ax^2 + ax - 4 = 0 \rightarrow \alpha - \frac{1}{r}, \beta - \frac{1}{r}$ $\alpha + \beta = \frac{a}{r} \quad \alpha + \beta - 1 = -\frac{1}{r} \rightarrow \alpha + \beta = \frac{1}{r} \rightarrow a = 1$ $(\alpha - \frac{1}{r})(\beta - \frac{1}{r}) = \alpha\beta - \frac{1}{r}(\alpha + \beta) + \frac{1}{r^2} = -\frac{1}{r} - \frac{1}{r} \cdot \frac{1}{r} + \frac{1}{r^2} = -\frac{1}{r} - \frac{1}{r^2} + \frac{1}{r^2} = -\frac{1}{r}$ $\rightarrow \alpha\beta = -\frac{1}{r} \rightarrow \frac{b}{r} = -\frac{1}{r} \rightarrow b = -1 \rightarrow \left[\frac{a}{r}\right] = \left[\frac{-1}{r}\right] = -\frac{1}{r}$	6
$ax^2 - ax - b = 0 \quad f_0\beta^2 + r_0\alpha^2 - r_0\beta = 14 \quad S=1 \quad p = -\frac{b}{a}$ $r_0(\alpha^2 + \beta^2) + r_0\beta^2 - r_0\beta = 14 \rightarrow 4 \cdot \frac{b}{a} = -2 \rightarrow \frac{b}{a} = -\frac{1}{r_0}$ $r_0 + f_0\frac{b}{a} \rightarrow a = -r_0b \rightarrow p = -\frac{b}{a} = \frac{1}{r_0}$ $\rightarrow \alpha + \beta = 1 \rightarrow \alpha = 1 - \beta \rightarrow \beta(1 - \beta) = \frac{1}{r_0} \rightarrow r_0\beta^2 - r_0\beta + 1 = 0$ $\rightarrow \beta = \frac{r_0 \pm \sqrt{r_0^2 - 4r_0}}{2r_0} \rightarrow \beta = \frac{1}{r} \pm \frac{\sqrt{5}}{2}, \alpha = \frac{1}{r} - \frac{\sqrt{5}}{2}$ $\rightarrow \alpha - \beta = \frac{\sqrt{5}}{2}$	7
$n^2 - (a+1)n + a = 0$ $\rightarrow m + (m+2) = a+1 \rightarrow 2m+1 = a$ $\rightarrow m(m+2) = m^2 + 2m = a$ $\rightarrow m^2 = 1 \xrightarrow{\text{مربع}} m = 1, m+2 = 3 \rightarrow 1 \times 3 = 3 = a$ $n^2 - (2a+1)n + b = 0 \xrightarrow{a=3} S=10$ $2n+2=10 \rightarrow n=4, n+2=6 \rightarrow 4 \times 6 = 24 = b$ $\rightarrow 24 - 3 = 21$	در عدد فرد متوالی طبیعی دو عدد زوج متوالی
$n^2 + n - 1 - m^2 = 0 \rightarrow \alpha^2 + \beta^2 = S^2 - 2p = 1 - 2p$ $\rightarrow p = -1 - m^2 \rightarrow S^2 - 2p = 1 + 2 + 2m^2$ $\rightarrow \text{if } m=0 \rightarrow \Delta > 0 \checkmark$ $\rightarrow m=0 \xrightarrow{\min} \alpha^2 + \beta^2 = 1 + 2 + 0 = 3$	9
$A(x, y) \quad B(-x, y) \quad \frac{y-5}{2} > -1$ $\rightarrow (-1, 1)$ $\rightarrow \text{اس خطی} = \frac{b}{ra} = \frac{1}{-1} \rightarrow b = -a \rightarrow ax^2 + (-a)x + c = 0$ $\rightarrow a - b + c = 1 \rightarrow a - (-a) + c = 1 \rightarrow c = 1 - a$ $\rightarrow ax^2 + (-a)x + 1 - a = 0 \rightarrow \alpha^2 + \beta^2 = S^2 - 2p = 1 - 2(-\frac{a+1}{a}) = 1 + 2 + \frac{2}{a} = 3 + \frac{2}{a}$ $\rightarrow \frac{a+1}{a} = -\frac{1}{r} \rightarrow a+1 = -\frac{1}{r}a \rightarrow \frac{r}{r}a = -1 \rightarrow a = -\frac{r}{r}$ $\rightarrow \text{عرض از} = a+1 = -\frac{r}{r} + 1 = \frac{1}{r}$	عرض از اس = 1 (اولا) 1