

$$\text{معدل راسی} = 2 = \frac{-b}{2a} = \frac{-1}{2(a-1)} \Rightarrow (a-1) = -1 \Rightarrow a = 2 \Rightarrow a = \frac{4}{2}$$

$$\rightarrow \left(\frac{4}{2} - 1\right)x^2 + x + 3 \Rightarrow \Delta = 1 - 4(2)\left(-\frac{1}{2}\right) = 4 \Rightarrow x = \frac{-1 \pm 2}{-\frac{1}{2}} \rightarrow \begin{matrix} -2 \\ 1 \end{matrix}$$

معدل جواب

۱

از جدول تعیین علامت می بینیم که $m < 0$ باید باشد و نیزه Δ است

$$\Delta = 25 - 4m^2 \rightarrow \Delta = -4(-4)(25) = 20 \rightarrow m \rightarrow \begin{matrix} \frac{5}{2} \\ -\frac{5}{2} \end{matrix}$$

$m < 0$ $\Rightarrow$ $\left(-\frac{5}{2}, \frac{5}{2}\right)$

$\textcircled{1} \cap \textcircled{2} = \left(-\frac{5}{2}, 0\right)$

۲

$$S = \frac{3 - \sqrt{5}}{3} + \frac{3 + \sqrt{5}}{3} = \frac{6}{3} = 2$$

$$P = \left(\frac{3 - \sqrt{5}}{3}\right)\left(\frac{3 + \sqrt{5}}{3}\right) = \frac{9 - 5}{9} = \frac{4}{9}$$

$$\rightarrow y = x^2 - Sx + P = x^2 - 2x + \frac{4}{9} \Rightarrow 9x^2 - 18x + 4$$

۳

$$2x^2 + x^2 + 13^2 = 12 \text{ و } S = 4 \text{ و } P = \frac{m+2}{2} \Rightarrow 2x^2 + \frac{(5-2P)}{19-m-2} = 12 = 2x^2 - m = -2$$

$$\rightarrow 18x - m - 2 - m = -2 \rightarrow 18x - 2m = 0 \Rightarrow 9x - m = 0 \rightarrow 9x = m$$

$$\Delta = 4f - f(2)(m+2) = 4f - 18m - 14 = 61 - 18m \rightarrow x = \frac{1 \pm \sqrt{61 - 18m}}{9}$$

$$\rightarrow 9x = 1 - \sqrt{61 - 18m} \Rightarrow 1 - \sqrt{61 - 18m} = m \Rightarrow \sqrt{61 - 18m} = 1 - m$$

$$\rightarrow 61 - 18m = 1 + m^2 - 14m \rightarrow m^2 - 18m + 14 = 0 \rightarrow \Delta = 0 \rightarrow m = \frac{1}{2} = \textcircled{f}$$

۴

$$S/a = \frac{-b}{2a} = \frac{-4a}{8a} = -\frac{1}{2} \Rightarrow y = ax^2 + bx + c \Rightarrow 9 = 4a + 2b + c \Rightarrow 4 = 4a + 2b \Rightarrow b = 2 - 2a$$

$$4a + \frac{1+2}{2} = 9 \Rightarrow (a = -1) \Rightarrow y = -x^2 + 4x + 5$$

۵

$\Rightarrow$ $\{1, 2, 3, 4, 5\}$ و $\{1, 2, 3, 4, 5\}$

$$\frac{1}{\alpha} + \frac{1}{\beta} = \frac{\beta + \alpha}{\alpha\beta} \Rightarrow S = \frac{\sqrt{r}}{\alpha} \quad p = \frac{qr\beta}{\alpha} \Rightarrow \frac{\sqrt{r}}{\alpha} = \frac{\sqrt{r}}{qr\beta} / \alpha = \beta$$

$$\rightarrow \alpha^r - \sqrt{r} + qr\beta = 0 \rightarrow qr\beta = \sqrt{r} - \alpha^r \Rightarrow \beta = \frac{\sqrt{r} - \alpha^r}{qr}$$

$$\alpha = \beta \rightarrow \alpha\beta - \sqrt{r} + qr\beta = 0$$

$$\rightarrow \alpha\beta + r\beta = 0 \Rightarrow \beta(\alpha + r) = 0 \rightarrow \alpha\beta = -r \rightarrow \beta = -\frac{r}{\alpha} = \frac{\sqrt{r} - \alpha^r}{qr} \Rightarrow \sqrt{r} - \alpha^r = -1r$$

$$\rightarrow (\alpha^r)^r - \sqrt{r} - 1r = 0 \rightarrow \Delta = 1r^2, \alpha^r = \frac{\sqrt{r} \pm 1r}{r} \rightarrow \alpha = \sqrt[r]{\frac{\sqrt{r} \pm 1r}{r}} \Rightarrow \alpha = \sqrt[r]{\frac{\sqrt{r}}{r} \pm 1}$$

$$\alpha^r - m\beta = 1 \quad S = -m, p = -\frac{r}{m}$$

$$\frac{\alpha^r - m\beta}{\beta^r - r} = 1$$

$$\frac{\alpha^r + \beta^r}{S - r} - r = 1 \Rightarrow (m^r + r) - r = 1 \rightarrow m^r + r - 1 = 0 \rightarrow \Delta = r^2 - 4r = r(r - 4)$$

$$\rightarrow m = \frac{-r \pm 4}{r} \Rightarrow m = -1 \text{ or } m = 4 \Rightarrow S = -m = 1 \text{ or } S = -4$$

$$\frac{-b}{ra} = \frac{-r}{rm} = \frac{-r}{m} \Rightarrow 1 = \frac{r}{m} \Rightarrow m = r \Rightarrow m^r + r - 1 = 14$$

$$\Rightarrow m^r - r - 1 = 0 \rightarrow \Delta = r^2 + 4r = r(r + 4) \Rightarrow m = \frac{-r \pm 4}{r} \Rightarrow m = -1 \text{ or } m = 4$$

$$\rightarrow \Delta = 14 - r(-1) = 14 + r \Rightarrow x = \frac{-r \pm 1}{-r} \Rightarrow x = 1 \text{ or } x = -\frac{1}{r}$$

$$\frac{1}{\alpha} + \frac{1}{\beta} = \frac{\beta + \alpha}{\alpha\beta} \quad c = f \quad \frac{-b}{ra} = r \Rightarrow \alpha = -b / r \Rightarrow 4 = \frac{f}{a} + r \Rightarrow \frac{r}{a} = \frac{f}{a} + r \Rightarrow \frac{r}{a} = \frac{f}{a} + r$$

$$\Rightarrow y = -\frac{1}{r}x^r + rx + f \Rightarrow S = r, p = -1 \Rightarrow \frac{1}{\alpha} + \frac{1}{\beta} = \frac{\alpha + \beta}{\alpha\beta} = \frac{r}{-1} = -r$$

$$r = r \Rightarrow f - 1a - 1 + \frac{r}{a} + 4a + r = 0 \Rightarrow \frac{r}{a} - 1a - 1 = 0 \Rightarrow \Delta = f - f(-r) = 14$$

$$\rightarrow a = \frac{r \pm 1}{r} \Rightarrow a = 1 \Rightarrow a^r - 1a + 1 = 0 \Rightarrow \Delta = 14 \Rightarrow a = \frac{1 \pm 1}{r} = \frac{2}{r}$$

$$\Rightarrow a = \frac{2}{r} \Rightarrow \frac{r}{a} - 1a + f = 0 \Rightarrow \Delta = 14 \Rightarrow a = \frac{1 \pm 1}{r} = \frac{2}{r}$$