باران میرشاه ولایتی - شماره تکلیف = ۱۳ - یازدهم دختر(ح)

۱-

$$-\frac{b}{2a}=2 \to \frac{-1}{2(a-1)}=2 \to a=\frac{3}{4} \Rightarrow y=-\frac{1}{4}x^2+x+3 \to \Delta=1+3=4 \Rightarrow$$

$$x=\frac{-1\pm2}{-\frac{1}{2}} = \begin{cases}-2\\ 6\end{cases}$$

۲-

$$|x_1-x_2|=\frac{\sqrt{\Delta}}{|a|}>0 \Rightarrow \frac{\sqrt{25-4m^2}}{|m|}>0 \to \begin{array}{ccccccc} -\infty & -\frac{5}{2} & & 0 & & +\frac{5}{2} & +\infty \\ - & \phi & + & \phi & + & \phi & - \end{array} \to \left[-\frac{5}{2},\frac{5}{2}\right]-\{0\}$$

۳-

$$\left.\begin{aligned} &\frac{3-\sqrt5}{2}+\frac{3+\sqrt5}{2}=2=S \\ &\left(\frac{3-\sqrt5}{2}\right)\left(\frac{3+\sqrt5}{2}\right)=\frac{9-5}{4}=\frac{4}{9}=P \end{aligned}\right\} \to x^2-Sx+P=0 \Rightarrow x^2-2x+\frac{4}{9}=0$$

۴-

$$2(\alpha^2+\beta^2)+\underbrace{(\alpha^2-\beta^2)}_{(\alpha-\beta)(\alpha+\beta)}=12 \Rightarrow 2\left(16-2\left(\frac{m+2}{2}\right)\right)+(-4)\left(\frac{\sqrt{64-8m-16}}{2}\right)=12 \Rightarrow 16=2m+2\sqrt{48-8m} \overset{\div2}{\Rightarrow}$$

$$8=m+\sqrt{48-8m} \xrightarrow{\text{توان ۲}} (8-m)^2=\sqrt{48-8m} \to \begin{cases} m^2-8m+16=0 \to (m-4)^2=0 \to m=4 \\ m^2-24m+112=0 \quad \Delta<0 \text{ غ ق ق} \end{cases}$$

$$64+m^2-16m=|48-8m|$$

۵-

$$ax^2+bx+\underset{5}{c}=y \Rightarrow \underset{x=-1,5}{-x^2+4x+5}>0 \to \begin{array}{ccccc} -\infty & -1 & & 5 & +\infty \\ - & \phi & + & \phi & - \end{array} \to (-1,5)$$

$$-\frac{b}{2a}=2 \to b=-4a$$

$$\frac{-\Delta}{4a}=9 \to \frac{b^2-4ac}{-4a}=9 \to \frac{b^2+5b}{b}=9 \to b=4,\ a=-1$$

۶-

$$\alpha+\beta=\frac{7}{\alpha} \Rightarrow \alpha^2+\alpha\beta=7$$

$$\alpha\beta=\frac{9\beta}{\alpha} \to \alpha^2\beta=9\beta \to \alpha=\pm3 \begin{cases} \alpha=-3:\ 9-3\beta=7 \to \beta=\frac{2}{3} \text{ ق ق} \Rightarrow \\ \alpha=3:\ 9+3\beta=7 \to \beta=-\frac{2}{3} \text{ غ ق ق} \end{cases}$$

$$\frac{1}{\alpha}+\frac{1}{\beta}=\frac{\alpha+\beta}{\alpha\cdot\beta}=\frac{\frac{7}{\alpha}}{\frac{9\beta}{\alpha}}=\frac{7}{9\times\frac{2}{3}}=\frac{7}{6}$$

۷-

$$x=\beta \to \beta^2-2m=-m\beta \Rightarrow \underbrace{\alpha^2+\beta^2}_{m^2+4m}-2m=8 \to m^2+2m-8=0$$

$$(m+4)(m-2)=0 \to \begin{cases}-4\\ 2\end{cases}$$

$$\alpha+\beta=m=-4+2=-2$$

۸- $\frac{b^2-4ac}{-4a}=8 \Rightarrow 16-4m^2-28m=-24m \Rightarrow$

$-4m^2+4m+16=0 \xrightarrow{\text{تقسیم بر}} m^2+m-12=0$

$(m+4)(m-3)=0 \rightarrow \frac{4}{-2}=-2$ قبول

$\frac{-8}{-2}=+4$ غیر قبول $\rightarrow$

$f(x)=-2x^2+4x+6 \xrightarrow[a+c=b]{\text{شرط}} -1, 3 \rightarrow k=3$ $\quad \Delta=16-144<0$

۹- $ax^2+bx+\frac{c}{4}=0 \Rightarrow -\frac{1}{2}x^2+2x+4=0$

$-\frac{b}{4a}=2 \rightarrow b=-4a$

$\frac{b^2-4ac}{-4a}=6 \rightarrow \frac{b^2+4b}{b}=6 \rightarrow b=2 \text{ , } a=-\frac{1}{2}$

$\frac{1}{\alpha}+\frac{1}{\beta}=\frac{\alpha+\beta}{\alpha\beta}=\frac{+4}{-8}=-\frac{1}{2}$

۱۰- $x=2 \rightarrow 4-10a-8+3a^2+6a+3=0 \Rightarrow$

$3a^2-4a-1=0 \xrightarrow{a+b+c=0} 1, -\frac{1}{3}$

$a=1 \rightarrow x^2-10x+12=0 \rightarrow \Delta=64-48=16 \rightarrow x=\frac{10\pm4}{2} \begin{cases} \nearrow 7 \\ \searrow 3 \end{cases}$

$a=-\frac{1}{3} \rightarrow x^2-\frac{5}{3}+\frac{4}{3}=0 \rightarrow \Delta=\frac{64}{9}-\frac{16}{3}=\frac{16}{9} \rightarrow x=\frac{\frac{5}{3}\pm\frac{4}{3}}{2}=$

2 و $\frac{1}{3}$