نام و نام خانوادگی ..ابوالفضل ابوفاضلی.......... پاسخنامه تشریحی تکلیف شماره ..۱۳.... کلاس ...یازدهم........

۱

$-\frac{b}{2a} = \frac{-1}{2(a-1)} = 2 \to -1 = 4a - 4 \to 4a = 3 \to a = \frac{3}{4}$

$\xrightarrow{\text{معادله}} -\frac{1}{4}x^2 + x + 3 \xrightarrow{\times(-4)} x^2 - 4x - 12 = 0 \to (x-6)(x+2) = 0$

$\to x = \begin{cases} 6 \to + \text{طول} \\ -2 \quad \text{غ ق ق} \end{cases}$

۲

$P = \frac{c}{a} = \frac{m}{m} = 1 \to$ ۲ ریشه معکوس اند

$S = \frac{-b}{a} = \frac{5}{m}$

$\Delta > 0 \to 25 - 4m^2 > 0 \to 4m^2 < 25 \to (2m)^2 < (5)^2 \to \begin{cases} 2m < 5 \\ 2m > -5 \end{cases} \to \boxed{-\frac{5}{2} < m < \frac{5}{2}}$

$a < 0 \to m < 0$

$\Rightarrow -2.5 < m < 0$

۳

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

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

$\to x^2 - 2x + \frac{4}{9} \xrightarrow{\times 9} 9x^2 - 18x + 4$

۴

$3\alpha^2 + \beta^2 = 12 \to 2\alpha^2 + \alpha^2 + \beta^2 = 12 \to 2\alpha^2 + S^2 - 2P = 12$

$x_1 : \alpha \to 2\alpha^2 = 8\alpha - m - 2 \Rightarrow 8\alpha - m - 2 + (4)^2 - 2\left(\frac{m+2}{2}\right) = 12$

$\to 8\alpha - m - 2 + 14 - m = 12 \to 8\alpha = 2m \to 4\alpha = m \xrightarrow{\text{جایگذاری}} 2\alpha^2 - 8\alpha + 4\alpha + 2 = 0$

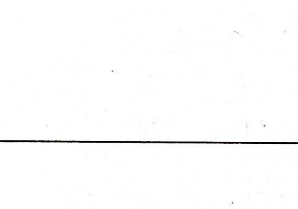
$\to 2\alpha^2 - 4\alpha + 2 = 0 \to \alpha = 1 \Rightarrow m = 4\alpha = 4$

۵

$y = ax^2 + bx + c \xrightarrow{c=5} y = ax^2 + bx + 5 \to \frac{-b}{2a} = 2 \to -b = 4a$

$\xrightarrow{\text{جایگذاری}} ax^2 - (4a)x + 5 \xrightarrow{(2,9)} 4a - 8a + 5 = 9 \to -4a = 4 \to a = -1$

$\to$ معادله : $-x^2 + 4x + 5 \to -(x-5)(x+1) \to$



$\to x : (-1, 5)$

۶

$\frac{1}{\alpha}+\frac{1}{\beta}=\frac{\alpha+\beta}{\alpha\beta}=\frac{S}{P}$

$\alpha x^2-7x+9\beta=0 \to \begin{cases}\alpha^3-7\alpha+9\beta=0 \to \beta=\frac{\alpha(7-\alpha^2)}{9}\\ \alpha\beta^2-7\beta+9\beta=0 \to \alpha\beta^2+2\beta=\beta(\alpha\beta+2)=0 \begin{cases}\alpha\beta=-2\\ \beta=0\end{cases}\end{cases}$

$\Rightarrow \alpha\cdot\beta=\frac{9\beta}{\alpha}=-2 \to 9\beta=-2\alpha \to \alpha=-4.5\beta$ ‏ $\alpha\beta=-2 \Leftarrow$ غ ق ق $\leftarrow$ ت ن $\leftarrow \frac{S}{0}=\frac{S}{P} \leftarrow \alpha\cdot\beta=0$

$(-4.5\beta)(\beta)=-4.5\beta^2=-2 \to \beta=\sqrt{\frac{20}{45}}=\sqrt{\frac{4}{9}}=\pm\frac{2}{3} \xrightarrow[P<0]{\beta=(+)} \frac{2}{3}$ ‏ $\to \beta+\alpha=-3.5\beta=S \to -\frac{7}{2}\times\frac{2}{3}=-\frac{7}{3}$

۷

$\alpha^2-m\beta=8 \to \boxed{\alpha^2=m\beta+8} \xrightarrow{\alpha} \alpha^2+m\alpha-2m=0 \to (m\beta+8)+m\alpha-2m=0$

$\Rightarrow m(\alpha+\beta)=2m-8 \xrightarrow{S:\frac{-b}{a}=-m} m(-m)=2m-8 \to m^2+2m-8=0 \to$

$(m+4)(m-2)=0 \begin{cases} m=2\to\Delta>0\\ m=-4\to\Delta<0 \text{ غ ق ق } \times\end{cases}$

$\Rightarrow m=2 \to S=\frac{-b}{a}=-m=-2$

۸

$y_{max}:\frac{-\Delta}{4a}=\frac{-(16-4m(7+\frac{m}{2}))}{4m}=8 \to 2m^2+28m-16=32m \to 2m^2-4m-16=0$

$\to m^2-2m-8=0 \to (m-4)(m+2)=0 \begin{cases} m=-2\\ m=4\to\Delta<0 \text{ غ ق ق}\end{cases}$

$\Rightarrow m=-2 \to -2x^2+4x+6=-2(x^2-2x-3)=-2(x-3)(x+1)=y$

$\Rightarrow \begin{cases}x_1=3\\ x_2=-1\end{cases} \to \boxed{K=\text{ریشه مثبت}=3}$

۹

$\frac{1}{\alpha}+\frac{1}{\beta}=\frac{\alpha+\beta}{\alpha\beta}=\frac{S}{P}$

$ax^2+bx+c=0 \to ax^2+bx+4=0 \xrightarrow{\frac{-b}{2a}=2\to b=-4a} ax^2-4ax+4=0 \xrightarrow{(2,6)}$

$y=4a-8a+4=6 \to -4a=2 \to a=-\frac{1}{2} \xrightarrow{\text{معادله}} -\frac{1}{2}x^2+2x+4=0$

$\to S: \frac{-2}{-\frac{1}{2}}=4$

$P:\frac{4}{-\frac{1}{2}}=-8 \Rightarrow \frac{S}{P}=\frac{4}{-8}=-\frac{1}{2}$ جواب

۱۰

$x^2-(4a+4)x+(3a^2+6a+3)=0 \xrightarrow{x=2} 4-8a-8+3a^2+6a+3=0 \to 3a^2-2a-1=0$

$\xrightarrow{\text{تجزیه}} (a-1)(3a+1)=0 \to \begin{cases} a=-\frac{1}{3}\to x^2-\frac{8}{3}x+\frac{4}{3}\to 3x^2-8x+4=0 \to \begin{cases}x=\frac{2}{3}\\ x=2\end{cases}\\ a=1\to x^2-8x+12\to(x-6)(x-2)=0\to x=\begin{cases}2\\ 6\end{cases}\end{cases}$

$\longrightarrow$ ریشه دیگر $\begin{cases}6\\ \frac{2}{3}\end{cases}$