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

19,5

۱ (۲)

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

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

$x = \begin{cases} 6 \checkmark \longrightarrow \text{قابل} \\ -2 \text{ غ ق} \end{cases}$

۲ (۲)

$P = \frac{c}{a} = \frac{m}{m} = 1 \longrightarrow$ ریشه‌ها عکس‌اند

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

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

$a < 0 \longrightarrow m < 0$

$\Longrightarrow -2.5 < m < 0 \checkmark$

۳ (۲)

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

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

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

۴ (۲)

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

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

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

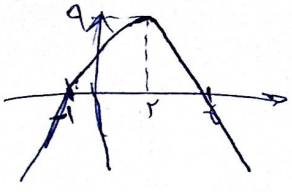
$\longrightarrow 2\alpha^2 - 4\alpha + 2 = 0 \longrightarrow \alpha = 1 \Longrightarrow m = 4\alpha = 4 \checkmark$

۵ (۲)

$y = ax^2 + bx + c \xrightarrow{c=0} y = ax^2 + bx + 2 \longrightarrow -\frac{b}{2a} = 2 \longrightarrow -b = 4a$

$\xrightarrow{\text{جایگذاری}} ax^2 - (4a)x + 2 \xrightarrow{(2,9)} 4a - 8a + 2 = 9 \longrightarrow -4a = 7 \longrightarrow a = -1$

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



$\longrightarrow x : (-1, 2) \checkmark$

$\frac{1}{\alpha}+\frac{1}{\beta}=\frac{\alpha+\beta}{\alpha\beta}=\frac{S}{P}$ خواسته سوال: $\frac{1}{\alpha}+\frac{1}{\beta}=\frac{7}{4}$

$\alpha x^2-7x+9\beta=0 \rightarrow \begin{cases}\alpha^2-7\alpha+9\beta=0 \rightarrow \beta=\frac{4(7-\alpha^2)}{9}\\ \alpha\beta^2-7\beta+9\beta=0 \rightarrow \alpha\beta^2+2\beta=\beta(\alpha\beta+2)=0 \end{cases} \begin{cases}\alpha\beta=-2\\ \beta=0\end{cases}$

$\Rightarrow 9\beta=\frac{9\beta}{\alpha}=-2 \rightarrow$ $\alpha=-2$ $\alpha\beta=-2$ ⟸ غ ق ⟸ ن ⟸ $\frac{S}{0}=\frac{S}{P}$ ⟸ $9\beta=0$

$9\beta=-2\alpha \rightarrow \alpha=-4/5\beta \rightarrow \beta+\alpha=-3/5\beta=5 \rightarrow -\frac{7}{2}\times\frac{2}{3}=\frac{-7}{3}$

$(-4/5\beta)(\beta)=-4/5\beta^2=-2 \rightarrow \beta=\sqrt{\frac{20}{4}}=\sqrt{\frac{4}{9}}=\pm\frac{2}{3} \xrightarrow[P<0]{\beta=(+)} \frac{2}{3}$ ✓

۱,۵ — ۶

$\alpha^2-m\beta=4 \rightarrow \boxed{\alpha^2=m\beta+4} \xrightarrow{\alpha} \alpha^3+m\alpha-2m=0 \rightarrow (m\beta+4)+m\alpha-2m=0$

$\Rightarrow m(\alpha+\beta)=2m-4 \xrightarrow{S:\frac{-b}{a}=-m} m(-m)=2m-4 \rightarrow m^2+2m-4=0 \rightarrow$

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

$\Rightarrow m=2 \rightarrow S=\frac{-b}{a}=-m \in \{-2\}$ ✓

۲ — ۷

$y_{max}: \frac{-\Delta}{4a}=\frac{-(14-4m(1+\frac{m}{2}))}{4m}=4 \rightarrow 2m^2+24m-14=12m \rightarrow 2m^2-4m-14=0$

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

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

$\Rightarrow \begin{cases}x_1=3\\ x_2=-1\end{cases} \rightarrow$ ریشه مثبت $K=3$ ✓

۲ — ۸

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

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

$y=2a-8a+4=4 \rightarrow -4a=2 \rightarrow a=-\frac{1}{2}$ معادله $\rightarrow -\frac{1}{2}x^2+2x+4=0$

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

۲ — ۹

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

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

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

۲ — ۱۰