نام و نام خانوادگی ...هستی جابکی... پاسخنامه تشریحی تکلیف شماره ...۱۹... کلاس ...یازدهم دختر A...

۱

$3x^2 - ax + 4 = 0 : \alpha , 3\alpha \Rightarrow 3\alpha^2 = \frac{4}{3} \to \alpha^2 = \frac{4}{9} \Rightarrow \boxed{\alpha = \pm\frac{2}{3}}$

$\Rightarrow \frac{a}{3} = 4\alpha \to \alpha \times 12 = a$

$\to a_1 = \frac{2}{3}\times 12 = 8$

$\to a_2 = \frac{-2}{3}\times 12 = -8 \qquad \Rightarrow a_1 - a_2 = 8-(-8) = \underline{16}$

۲

$36x^2 - (m+14)x + 1 = 0 \Rightarrow \alpha , \beta \quad : \frac{1}{\sqrt{\alpha}} + \frac{1}{\sqrt{\beta}} = 5 : \frac{\sqrt{\beta}+\sqrt{\alpha}}{\sqrt{\alpha\beta}} = 5 \to \sqrt{\alpha}+\sqrt{\beta} = \frac{5}{6} \xrightarrow{(\,)^2} = \alpha+\beta+2\sqrt{\alpha\beta} = \frac{25}{36}$

$\sqrt{\alpha\beta}: \frac{1}{36}\} = \frac{1}{6} \qquad 2\cdot\frac{1}{6} = \frac{1}{3}$

$\Rightarrow \alpha+\beta = \frac{13}{36} \Rightarrow \frac{m+14}{36} = \frac{13}{36} \Rightarrow \boxed{m=-1}$

$\Rightarrow mx^2+3x+2=0 : -x^2+3x+2=0 : P = \frac{c}{a} = \boxed{-2}$

حاصلضرب ریشه‌ها

۳

$4x^3 + kx^2 - 9x - 2 = 0 : \alpha , \beta \ / \ \alpha+\beta = 1 , \alpha\beta = -2 \Rightarrow k = ?$

$\Rightarrow (\alpha+\beta)^2 = \alpha^2+\beta^2+2\alpha\beta \Rightarrow 1 = \alpha^2+\beta^2-4 \Rightarrow \boxed{\alpha^2+\beta^2 = 5}$ و $\to (\alpha-\beta)^2 = \alpha^2+\beta^2-2\alpha\beta$

$\Rightarrow (\alpha-\beta)^2 = 5+4 = 9 \Rightarrow \boxed{\alpha-\beta = 3} \Rightarrow \alpha+\beta = 1 , \alpha-\beta = 3 \Rightarrow \boxed{\alpha = 2} , \boxed{\beta = -1}$

$\Rightarrow \beta = -1 : -4+k+9-2 = 0 \Rightarrow \boxed{k=-3}$

۴

$x^2+6x+a=0 : \alpha < \beta < 0 , 3\alpha^2+2\beta^2 = 12\sqrt{2}+85 : a = ?$

$\Rightarrow \overset{*1}{2}(\alpha^2+\beta^2)+\alpha^2 = 12\sqrt{2}+85$

$\Delta = 36-4a : \alpha,\beta = \frac{-6\pm 2\sqrt{9-a}}{2} = -3\pm\sqrt{9-a} \xrightarrow{\beta>\alpha} \begin{cases} \beta = -3+\sqrt{9-a} \\ \alpha = -3-\sqrt{9-a} \end{cases}$

$\Rightarrow \begin{cases} \beta^2 = \overset{18}{\cancel{9+9}}-a-6\sqrt{9-a} \\ \alpha^2 = \underset{18}{9+9}-a+6\sqrt{9-a} \end{cases} \Rightarrow *1 : 2(18-a-\cancel{6\sqrt{9-a}}+18-a+\cancel{6\sqrt{9-a}})+18-a+6\sqrt{9-a} =$

$\Rightarrow 90-5a+6\sqrt{9-a} = 12\sqrt{2}+85 : -5a+6\sqrt{9-a} = 12\sqrt{2}-5 \Rightarrow 6\sqrt{9-a} = 12\sqrt{2} \to 6\times 2\sqrt{2} \quad \sqrt{8} = 2\sqrt{2}$

$-5a = -5 \Rightarrow \boxed{a=1}$

۵

$x^4-7x^2-5=0 \xrightarrow{x^2=t} t^2-7t-5=0 : \Delta = b^2-4ac = 49+20 = 69 \Rightarrow \Delta>0$: ۲ جواب! $\Rightarrow t = x^2 \Rightarrow$ پس جمع ریشه‌ها (S) = ۰! (هم + و هم − ریشه جوابه)

$2P^2-3SP+23 = ? \xrightarrow{S=0} 2P^2 = ? \quad : t = x^2 = \frac{7\pm\sqrt{69}}{2} \ ; \ x^2 = \frac{7+\sqrt{69}}{2} \Rightarrow x = \pm\sqrt{\frac{7+\sqrt{69}}{2}}$

$\Rightarrow 2P^2 = 2\times(\underbrace{\alpha^2\times\beta^2}) \Rightarrow 2\times(\alpha)^4 = 2\times\left(\frac{7+\sqrt{69}}{2}\right)^2 \Rightarrow \frac{49+69+14\sqrt{69}}{2} = \frac{118+14\sqrt{69}}{2}$

($\alpha^2 = \beta^2$ (قرینه‌اند، علامت مختلف!))

$\Rightarrow 2P^2 = 59+7\sqrt{69}$

$2x^2-ax+b=0 : \quad \alpha+\frac{1}{2}, \beta+\frac{1}{2} \Rightarrow \left[\frac{ab}{4}\right]=?$

$2ax^2+ax-6=0 \to \alpha, \beta : \quad S=\frac{-a}{2a}=\frac{-1}{2}, \quad P=\frac{-6}{2a}=\frac{-3}{a}$

معادله اول:

$\Rightarrow S=\underbrace{\alpha+\beta}_{\frac{-1}{2}}+1=\frac{a}{2} \Rightarrow \frac{a}{2}=\frac{1}{2} \Rightarrow \boxed{a=1}, \quad P=\underbrace{\alpha\beta}_{\frac{-3}{a}=-3}+\frac{1}{2}(\underbrace{\alpha+\beta}_{\frac{-1}{2}})+\frac{1}{4}=\frac{b}{2} : -3+\cancel{\frac{-1}{4}}+\cancel{\frac{1}{4}}=\frac{b}{2}$

$\Rightarrow b=-6$ $\quad \Rightarrow \left[\frac{ab}{4}\right]=\left[\frac{-6}{4}\right]=\left[\frac{-3}{2}\right]=-1$ (۶)

$ax^2-ax-b=0, \quad 4\beta^2+2\alpha^2-2\beta=17 \Rightarrow 2(\beta^2+\alpha^2)+2(\beta^2-\beta)=17$

(ریشه) $a(\beta^2-\beta)=b : \beta^2-\beta=\frac{b}{a} \Rightarrow 2\left(\frac{b}{a}\right)+2(\underbrace{S^2}_{1}-\underbrace{2P}_{\frac{2b}{a}})=17$

$1+\frac{2b}{a}=\frac{a+2b}{a}$

$\Rightarrow \frac{2b}{a}+\frac{2a+4b}{a}=\frac{6b+2a}{a}=17 \Rightarrow 6b=-3a \Rightarrow \boxed{a=-2b}$ (۷)

$\Rightarrow |\alpha-\beta|=\frac{\sqrt{\Delta}}{|a|}=\frac{\sqrt{4b^2-8b^2}}{|-2b|}=\frac{\sqrt{32}|b|}{2|b|}=\frac{8\sqrt{5}}{20}=\frac{2\sqrt{5}}{5}$

$x^2-(a+1)x+a=0 :$ ۲ عدد فرد متوالی $\to a+b+c=0 \Rightarrow x=1, a \Rightarrow 1, 3 \Rightarrow a=3$

$x^2-(2a+1)x+b=0 :$ ۲ عدد زوج متوالی $\Rightarrow a=3 : x^2-10x+b=0 \Rightarrow \begin{cases} S=10 \\ P=b \end{cases} \Rightarrow \alpha=\beta+2$

$\Rightarrow \underbrace{\alpha}_{\beta+2}+\beta=10 : \beta=4 \Rightarrow \alpha=6$ (۸)

$\Rightarrow P_2-P_1=24-3=21$

$\Rightarrow P_2=b=\alpha\beta=4\times 6=24$

$x^2+x+(-m^2-1)=0 : \alpha, \beta \Rightarrow Min: \alpha^2+\beta^2=(S)^2-2P : 1-2P$

$S=-1, \quad P=-m^2-1 \quad \Rightarrow 1+2m^2+2=2m^2+3 \Rightarrow 3 \to$ کمترین مقدار:

$m=0$

(۹)

$y_S=\frac{-\Delta}{4a}=1, \quad \begin{cases} A(3, y) \\ B(-5, y) \end{cases} \Rightarrow x_S=\frac{3-5}{2}=-1 \Rightarrow \begin{cases} x_S=-1 \\ y_S=1 \end{cases} \Rightarrow y=a(x+1)^2+1=ax^2+2ax+a+1$

(معادله سهمی)

$\Rightarrow \underbrace{\alpha^2+\beta^2}_{S^2-2P}=a \Rightarrow \left(\frac{-2a}{a}\right)^2-2\left(\frac{a+1}{a}\right)=a : \frac{-2a-2}{a}=1 \to -2a-2=a$ (۱۰)

$\Rightarrow \boxed{a=\frac{-2}{3}}$

$\Rightarrow y=\frac{-2}{3}x^2-\frac{4}{3}x+\left(\frac{-2}{3}+1\right)^{\frac{1}{3}} \Rightarrow^{x=0} : y=\frac{1}{3}$