نام و نام خانوادگی ......سهیل بهرامی...... پاسخنامه تشریحی تکلیف شماره ..۱۹.... کلاس ..یازدهم ریاضی B..........

۱	$3x^2-ax+4=0$ $\quad \alpha=3\beta \quad P=\alpha\cdot\beta=3\beta^2=\frac{4}{3} \Rightarrow \beta^2=\frac{4}{9} \Rightarrow \beta=\pm\frac{2}{3}$ $S=\alpha+\beta=4\beta=\frac{a}{3}$ $\to \beta=\frac{2}{3} \quad 4(\frac{2}{3})=\frac{8}{3}=\frac{a}{3} \Rightarrow a_1=8$ $\to \beta=-\frac{2}{3} \quad 4(-\frac{2}{3})=-\frac{8}{3}=\frac{a}{3} \Rightarrow a_2=-8$ $8-(-8)=16$	
۲	$36x^2-(m+14)x+1=0 \quad \frac{1}{\sqrt{\alpha}}+\frac{1}{\sqrt{\beta}}=5$ $\frac{\sqrt{\alpha}+\sqrt{\beta}}{\sqrt{\alpha\beta}}=5 \Rightarrow \frac{\sqrt{S+2\sqrt{P}}}{\sqrt{P}}=5 \Rightarrow \begin{cases} S=\frac{m+14}{36} \\ P=\frac{1}{36}\end{cases} \quad \frac{\sqrt{\frac{m+26}{36}}}{\sqrt{\frac{1}{36}}}=5$ $\Rightarrow 6\sqrt{\frac{m+15}{36}}=5 \quad \sqrt{\frac{m+15}{36}}=\frac{5}{6}=\frac{\sqrt{m+15}}{6} \Rightarrow m+15=25,\ m=10 \quad \frac{c}{a}=-2$	
۳	$4x^3+Kx^2-9x-2=0$ $\quad \alpha+\beta=1 \to \alpha=-\beta+1$ $\alpha\beta=-2 \to \beta(-\beta+1)=-2 \Rightarrow -\beta^2+\beta=-2 \quad -\beta^2+\beta+2=0$ $\beta^2-\beta-2=0$ $(\beta-2)(\beta+1)$ $\begin{cases}\beta=2,\ \alpha=-1 \\ \beta=-1,\ \alpha=2\end{cases}$ جای‌گذاری $\Rightarrow 4(-1)^3+K(-1)^2-9(-1)-2=0$ $-4+K+9-2=0 \Rightarrow K+3=0 \to K=-3$	
۴	$x^2+6x+a \quad \alpha<\beta<0 \quad 3\alpha^2+2\beta^2=12\sqrt{2}+85=3\sqrt{32}+85$ $\alpha=\frac{-6-\sqrt{36-4a}}{2} \quad 2(\alpha^2+\beta^2)+\alpha^2=12\sqrt{2}+85 \Rightarrow 2(S^2-2P)+\alpha^2=12\sqrt{2}+85$ $2(36-2a)+\left(\frac{-6-\sqrt{36-4a}}{2}\right)^2=12\sqrt{2}+85 \Rightarrow 72-4a+\frac{72-2a+12\sqrt{36-4a}}{4}=72-4a+\frac{72-2a}{4}+3\sqrt{36-4a}=3\sqrt{32}+8$ $3\sqrt{36-4a}=3\sqrt{32} \Rightarrow 36-4a=32 \Rightarrow a=1$	
۵	$x^4-7x^2-5=0 \quad 2p^2-3sp+2s=?$ $\quad x^2=\frac{7\pm\sqrt{49+20}}{2}=\frac{7\pm\sqrt{69}}{2} \xrightarrow{x^2>} \frac{7+\sqrt{69}}{2}$ $\to \frac{7-\sqrt{69}}{2}$ غ ق ق $x_{1,2}=\pm\sqrt{\frac{7+\sqrt{69}}{2}} \Rightarrow \begin{cases} S=0 \\ P=-\frac{7+\sqrt{69}}{2}\end{cases}$ $2p^2-3sp+2s=2p^2 \Rightarrow 2\left(-\frac{7+\sqrt{69}}{2}\right)^2=2\times\left(\frac{49+69+14\sqrt{69}}{4}\right)=\frac{118+14\sqrt{69}}{2}=59+7\sqrt{69}$	

۶

$2x^2 - ax + b = 0 \qquad \left[\frac{ab}{4}\right]$

$2ax^2 + ax - 6 = 0$

$\alpha + 0{,}5 ,\ \beta + 0{,}5 \Rightarrow S = \alpha + \beta + 1 = \frac{a}{2} \Rightarrow \alpha + \beta = \frac{a}{2} - 1$

$S = \alpha + \beta = \frac{-a}{2a} = -\frac{1}{2} \Rightarrow \frac{a}{2} = \frac{1}{2} \Rightarrow a = 1$

$P = \alpha\beta + 0{,}5(\alpha+\beta) + 0{,}25 = \frac{b}{2}$

$P = \alpha\beta = \frac{-6}{2} = -3$

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

۷

$ax^2 - ax - b = 0 \qquad 40\beta^2 + 20\alpha^2 - 20\beta = 17 \Rightarrow 20\beta^2 + 20\alpha^2 + 20\beta^2 - 20\beta = 17$

$\begin{cases} S = 1 \\ P = \frac{-b}{a} \end{cases}$

$20\underbrace{(\beta^2 + \alpha^2)}_{S^2 - 2P = 1 - \frac{2(-b)}{a} = 1 + \frac{2b}{a}} + 20\beta^2 - 20\beta = 17$

$ax^2 - ax - b \xrightarrow{\div a} x^2 - x - \frac{b}{a} \xrightarrow{\times 20}$

$20x^2 - 20x - \frac{20b}{a} = 0 \Rightarrow 20\beta^2 - 20\beta = \frac{20b}{a}$

$20\left(1 + \frac{2b}{a}\right) + \frac{20b}{a} = 17 \Rightarrow 20 + \frac{60b}{a} = 17 \Rightarrow \frac{b}{a} = \frac{-1}{20} \Rightarrow \frac{-b}{a} = \frac{1}{20}$

$|\alpha - \beta| = \frac{\sqrt{\Delta}}{|a|} = \frac{\sqrt{1 - 4\left(\frac{-b}{a}\right)}}{1} = \sqrt{1 - \frac{1}{5}} = \sqrt{\frac{4}{5}} = \frac{2\sqrt{5}}{5}$

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$x^2 - (a+1)x + a = 0 \qquad \alpha + 2 ,\ \alpha$ ریشه‌ها

$S = \alpha + \alpha + 2 = 2\alpha + 2 = a + 1 \Rightarrow 2\alpha + 1 = a$

$P = \alpha(\alpha + 2) = \alpha^2 + 2\alpha = a \Rightarrow \alpha^2 + 2\alpha = a = 3$

$\alpha^2 + 2\alpha = 2\alpha + 1 \Rightarrow \alpha^2 = 1 \Rightarrow \alpha = \pm 1$

$\alpha \in \mathbb{N} \Rightarrow \alpha = 1 \qquad a = 2\alpha + 1 = 3$

$x^2 - (3a+1)x + b = 0$

$x^2 - 10x + b = 0 \longrightarrow \beta + 2 ,\ \beta$ ریشه‌ها

$S = 2\beta + 2 = 10 \Rightarrow \beta = 4 ,\ \beta + 2 = 6$

$P = 4 \times 6 = 24$

$24 - 3 = 21$

۹

$x^2 + x - 1 - m^2 = 0$

$S^2 - 2P = (1)^2 - 2(-1 - m^2) = 1 + 2 + 2m^2 = 2m^2 + 3$

$y_s = -\frac{\Delta}{4a} = \frac{8 \times 3}{4(2)} = 3$

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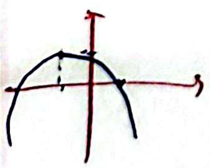
$x_s = \frac{x_A + x_B}{2} = \frac{3 + (-5)}{2} = -1 \Rightarrow 2x = S \Rightarrow S = -2$

$a(x^2 - Sx + P) = a\left(x^2 + 2x - \frac{1}{2}\right)$



$S^2 - 2P = 5 \Rightarrow 4 - 2P = 5 \Rightarrow P = -\frac{1}{2}$

$\xRightarrow{S(-1,1)} a\left(1 - 2 - \frac{1}{2}\right) = 1$

عرض از مبدا $\quad a \times \frac{-1}{2} = \frac{-2}{3} \times \frac{-1}{2} = \frac{1}{3}$

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