نام و نام خانوادگی ....[illegible]........ ۲۰ پاسخنامه تشریحی تکلیف شماره ..۱۹.. کلاس ...یازدهم [illegible]...

۱

$3x^2-ax+4=0 \qquad \beta=3\alpha \to P=\frac{4}{3}=3\alpha^2 \Rightarrow \alpha=\pm\frac{2}{3}$

$4\alpha=\frac{a}{3}\to 12\alpha=a \to a=8,-8 \to 8-(-8)=16$

(۲)

۲

$36x^2-(m+14)x+1=0 \qquad \frac{1}{\sqrt{\alpha}}+\frac{1}{\sqrt{\beta}}=5$

$\to P=\frac{1}{36} \qquad S=\frac{m+14}{36}$

$\frac{\sqrt{\alpha}+\sqrt{\beta}}{\sqrt{\alpha\beta}}=5 \to 5\sqrt{\alpha\beta}=\sqrt{\alpha}+\sqrt{\beta} \xrightarrow{\text{توان ۲}} 25\alpha\beta=\alpha+\beta+2\sqrt{\alpha\beta}$

$m=\frac{m+14}{36}+\frac{1}{3} \to m=-1 \to -x^2+3x+2=0 \to P=\frac{c}{a}=-2$

(۲)

۳

$4x^3+kx^2-9x-2=0 \qquad \alpha+\beta=1 \qquad \alpha\beta=-2$

$\to x^2-x-2$

$(x^2-x-2)(4x+m)=4x^3+kx^2-9x-2 \to 4x^3-4x^2-8x+mx^2-mx-2m$

$\to 4x^3+(m-4)x^2-(8+m)x-2m=4x^3+kx^2-9x-2$

$\to k=m-4 \qquad -8-m=-9 \to m=1 \to k=-3$

(۲)

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$x^2+6x+a=0 \qquad \alpha<\beta<0 \qquad 3\alpha^2+2\beta^2-\sqrt{2}+85$

$\Delta=36-4a=\frac{-6\pm\sqrt{36-4a}}{2} \to -3+\sqrt{9-a}\to\beta$

$-3-\sqrt{9-a}\to\alpha$

$3\alpha^2=54-3a+18\sqrt{9-a}$

$2\beta^2=36-2a-12\sqrt{9-a}$

$90+6\sqrt{9-a}-5a=12\sqrt{2}+85$

$5-12\sqrt{2}=5a-6\sqrt{9-a}$

$\to a=1$

(۲)

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$x^4-7x^2-5=0 \to t^2-7t-5=0 \qquad 2P^2-3SP+2S$

$\to \frac{7\pm\sqrt{69}}{2}$ قبول نیست $\to x_1=\sqrt{\frac{7+\sqrt{69}}{2}} \qquad x_2=-\sqrt{\frac{7-\sqrt{69}}{2}}$

$P_1=-\frac{7+\sqrt{69}}{2} \qquad 2P^2=2\left(-\frac{7+\sqrt{69}}{2}\right)^2=\frac{2(49+69+14\sqrt{69})}{4}$

$S=0 \qquad =59+7\sqrt{69}$

(۲)

۶

$2x^2 - ax + b = 0 \to \begin{cases} S = \frac{a}{2} \\ P = \frac{b}{2} \end{cases}$

$2ax^2 + ax - a \quad \begin{cases} S = -\frac{1}{2} \to \alpha+\beta = \frac{1}{2} = \frac{a}{2} \Rightarrow a = 1 \\ P = -4 \to b = -8 \end{cases}$ ۲

$\to \left[\frac{ab}{4}\right] = -2$

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$\alpha = 1-\beta \qquad 40\beta^2 + 20(1-\beta)^2 - 20\beta = 7 \to 40\beta\underbrace{(\beta-1)}_{-\alpha} = -1$

$\to \alpha\beta = \frac{1}{20} = \frac{-b}{a}$ ۲

$\to a = -20b \to ax^2 - ax - b = 0$

$\to -20bx^2 + 20bx - b = 0 \to |\alpha-\beta| = \frac{\sqrt{\Delta}}{|a|} = \frac{2}{\sqrt{a}}$

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$x^2 - (a+1)x + a = 0 \to \alpha, \alpha+2 \to S = a+1 = 2\alpha+2$

$x^2 - (3a+1)x + b = 0 \to \beta, \beta+2 \qquad P = a = \alpha^2 + 2\alpha \Rightarrow a+1 = \alpha^2+2\alpha+1$

$\begin{cases} \alpha^2 + 2\alpha + 1 = 2\alpha + 2 \to \alpha^2 = 1 \to \alpha = \pm 1 \xrightarrow[\text{طبیعی}]{\text{غیرα}} \alpha = 1 \\ \quad a = 3 \\ x^2 - 10x + b = 0 \to S = 10 = 2\beta + 2 \end{cases}$ ۲

$\to \beta = 8 \to b = 4\times 6 = 24$

اختلاف $\to 24 - 3 = 21$

۹

$x^2 + x - 1 - m^2 = 0 \qquad \alpha^2+\beta^2 = S^2 - 2P$

$\to S = -1 \qquad = (-1)^2 - 2(-1-m^2)$

$P = -1-m^2 \qquad 1 + 2 + 2m^2 \to 2m^2 + 3$ ۲

$= \frac{-b}{2a} = 0 \to \min = 3$

۱۰

$y = \underbrace{a(x+1)^2 + 1}_{ax^2+2ax+a+1} \to \Delta = \sqrt{-4a} = 2\sqrt{-a}$

$\to \frac{-2a \pm 2\sqrt{-a}}{2} \xrightarrow{\div 2} \frac{-a \pm \sqrt{-a}}{a} < \begin{matrix} -1 + \sqrt{\frac{-1}{a}} \\ -1 - \sqrt{\frac{-1}{a}} \end{matrix}$ ۲

$\alpha^2 + \beta^2 = S^2 - 2P = 2\left(1 - \frac{1}{a}\right) = 5 \to a = -\frac{2}{3}$

$y = -\frac{2}{3}x^2 - \frac{4}{3}x + \frac{1}{3} \xrightarrow{x=0} y = \frac{1}{3}$