نام و نام خانوادگی ....هستی جمالی.... **پاسخنامه تشریحی تکلیف شماره** ...۱۹... **کلاس** ...یازدهم دکتر A...

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

$\Rightarrow \frac{a}{3} = 4\alpha \to \alpha \times 12 = a \;\to\; a_1 = \frac{2}{3}\times 12 = 8 \;,\; a_2 = \frac{-2}{3}\times 12 = -8$

$\Rightarrow a_1 - a_2 = 8 - (-8) = \underline{16}$

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

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

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

حاصلضرب ریشه‌ها

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

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

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

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

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

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

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

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

$\Rightarrow 90 - 5a + 6\sqrt{9-a} = 12\sqrt{2} + 85 \;:\; -5a + 6\sqrt{9-a} = 12\sqrt{2} - 5 \Rightarrow 6\sqrt{9-a} = 12\sqrt{2} \;,\; -5a = -5 \Rightarrow \boxed{a=1}$

$6 \times 2\sqrt{2} = 12\sqrt{2}$

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$x^4 - 7x^2 - 5 = 0 \xrightarrow[\boxed{x^2 = t}]{} t^2 - 7t - 5 = 0 \;:\; \Delta = b^2 - 4ac = 49 + 20 = 69 \Rightarrow \Delta > 0$: ۲ جواب! $\Rightarrow t = x^2 \Rightarrow$ پس جمع ریشه‌ها (s) = ۰ ! (اول + دوم - ریشه جواب)

$2p^2 - 3sP + 23 = ? \xrightarrow{s=0} 2p^2 = ? \;:\; t = \frac{7 \pm \sqrt{69}}{2} \;:\; x^2 = \frac{7+\sqrt{69}}{2} \Rightarrow x = \pm\sqrt{\frac{7+\sqrt{69}}{2}}$

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

($\alpha^2 = \beta^2$ چون قرینه‌اند فقط!)

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

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

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

معادله اول:

$\Rightarrow S=\underbrace{\alpha+\beta}_{\frac{-1}{2}}+1=\frac{a}{2} \Rightarrow \frac{a}{4}=\frac{1}{4} \Rightarrow \boxed{a=1}$, $P=\underbrace{\alpha\beta}_{\frac{-3}{1\cdot a}}+\frac{1}{2}(\underbrace{\alpha+\beta}_{\frac{-1}{2}})+\frac{1}{4}=\frac{b}{2}$: $-3+\frac{-1}{4}+\frac{1}{4}=\frac{b}{2}$ 6

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

$2x^2-ax+b=0 \begin{cases} S=\frac{a}{2} \\ P=\frac{b}{2} \end{cases}$ $2ax^2+ax-6 \begin{cases} S=\frac{-1}{2} \to \alpha+\beta:\frac{1}{2}=\frac{a}{2} \to a=1 \\ P=-3 \to b=-6 \end{cases}$

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

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

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

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

$\Rightarrow \frac{2b}{a}+\frac{2a+4b}{a}=\frac{6b+2a}{a}=17 \Rightarrow 6b=-3a$: $\boxed{a=-2b}$ 7

$\Rightarrow |\alpha-\beta|=\frac{\sqrt{\Delta}}{|a|}=\frac{\sqrt{400b^2-80b^2}}{|-20b|}=\frac{\sqrt{320}\,|b|}{20|b|}=\frac{8\sqrt{5}}{20}=\frac{2\sqrt{5}}{5}$

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

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

$\Rightarrow \underbrace{\alpha}_{\beta+2}+\beta=10$: $\beta=4 \Rightarrow \alpha=6$ 8

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

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

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

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

$m=0$

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

$\Rightarrow \underbrace{\alpha^2+\beta^2}_{S^2-2P}=5 \Rightarrow \left(\frac{-2a}{a}\right)^2-2\left(\frac{a+1}{a}\right)=5$: $-\frac{2a-2}{a}=1 \to -2a-2=a$ 10

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

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