Made with Xodo PDF Reader and Editor

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

α و 3α $\quad 3x^2-ax+4=0$ $P=\frac{4}{3} \to \alpha \times 3\alpha=\frac{4}{3} \to 3\alpha^2=\frac{4}{3} \to \alpha^2=\frac{4}{9} \to \alpha=\frac{2}{3}, 3\alpha=2$ $\to \alpha=-\frac{2}{3}$ و $3\alpha=-2$ $S=a/3 \to \frac{a}{3}=2+\frac{2}{3}=\frac{8}{3}$ $\to \frac{a}{3}=-2-\frac{2}{3}=-\frac{8}{3}$ اختلاف $\to \frac{8}{3}-(-\frac{8}{3})=\frac{16}{3}$	۱
$\sqrt{\frac{1}{\alpha}}+\sqrt{\frac{1}{\beta}}=5 \xrightarrow{\text{به توان ۲}} \frac{1}{\alpha}+\frac{1}{\beta}+2\sqrt{\frac{1}{\alpha\beta}}=25 \to \frac{1}{\alpha}+\frac{1}{\beta}+12=25$ $\frac{\alpha+\beta}{\alpha\beta}=13 \to \frac{m+14}{36}\times 36=13 \to m+14=13 \to m=-1$ $36x^2-(m+14)x+1=0 \to P=\frac{1}{36} \to \alpha\beta=\frac{1}{36}$ $mx^2+3x+2 \to P=-2$	۲
$S=1$ و $P=-2$ $\xrightarrow{\text{معادله}}$ $x^2-x-2=0 \to (x+1)(x-2)=0 \to x=-1$ یا $x=2$ $4x^3+kx^2-9x-2=0 \xrightarrow{x=-1} -4+k+9-2=0 \to k=-3$ $\xrightarrow{x=2} 32+4k-18-2=0 \to k=-3$	۳
$x^2+6x+a=0 \to \alpha+\beta=-6 \to \alpha^2+\beta^2=(\alpha+\beta)^2-2\alpha\beta=36-2a$ $3\alpha^2+2\beta^2=2(\alpha^2+\beta^2)+\alpha^2=2(36-2a)+\alpha^2=72-4a+\alpha^2$ $(\beta-\alpha)^2=(\alpha+\beta)^2-4\alpha\beta=36-4a \xrightarrow{\beta>\alpha} \beta-\alpha=\sqrt{36-4a} \to \alpha=\frac{-6-\sqrt{36-4a}}{2}$ $72-4a+18-a+3\sqrt{36-4a}=90-5a+3\sqrt{36-4a}$ $\quad \alpha^2=18-a+3\sqrt{36-4a}$ $85+124$ $90-5a=85 \to a=1$	۴
$x^2=t \to t^2-7t+5=0 \to \Delta=\sqrt{29} \to t=\frac{7\pm\sqrt{29}}{2}$ $x^2=\frac{7+\sqrt{29}}{2} \to x=\pm\sqrt{\frac{7+\sqrt{29}}{2}} \to S=0$ (جمع ریشه‌ها صفر) $2P=2\left(\sqrt{\frac{7+\sqrt{29}}{2}}\right)\left(-\sqrt{\frac{7+\sqrt{29}}{2}}\right)=59+7\sqrt{29}$	۵

$2x^2 - ax + b = 0 \begin{cases} S = \frac{a}{2} \\ P = \frac{b}{2} \end{cases}$ $2ax^2 + ax - 6 \begin{cases} S = \frac{-1}{2} \to \alpha+\beta = \frac12 = \frac{a}{2} \to a = 1 \\ P = -3 \to b = -6 \end{cases}$

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

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$2x^2 - ax + b = 0 \to 2ax^2 + ax - 6 = 0$ $\alpha+\beta = -\frac{a}{2a} = -\frac12$

$\alpha+\frac12 , \beta+\frac12$ α , β $\alpha\times\beta = \frac{-6}{2a} = -3$

$S = \alpha+\beta+1 = \frac{a}{2}$ $S = \alpha+\beta = \frac{a-2}{2} = -\frac12 \Rightarrow a = 1$ $P = (\alpha+\frac12)(\beta+\frac12)$

$\to \alpha+\beta = \frac{a-2}{2} \to P = \frac{b}{2} \to b = -\frac{15}{2}$ $\alpha\beta + \frac12(\alpha+\beta) + \frac14 = -\frac{15}{4}$

$\left[\frac{ab}{4}\right] = \left[-\frac{15}{8}\right] = [-1.\ldots] = -2$

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$\alpha = 1-\beta$ $20\beta^2 + 20(1-\beta)^2 - 20\beta = 7 \Rightarrow 20\beta(\underbrace{\beta-1}_{-\alpha}) = -1 \to \alpha\beta = \frac{1}{20} = \frac{-b}{a}$

$\to x_1 - x_2 = \frac{\sqrt\Delta}{a}$ $a = -20b$ $ax^2 - ax - b = 0 \to -20bx^2 + 20bx - b = 0$ $|\alpha-\beta| = \frac{\sqrt\Delta}{|a|} = \frac{2}{\sqrt5}$

$\Delta = a^2 + 4ab \to |x_1 - x_2| = \frac{\sqrt{a^2+4ab}}{|a|} = \sqrt{1+\frac{4b}{a}}$

$4ab^2 + 20a^2 - 20b = 17 \xrightarrow{\div 20} 2b^2 + a^2 - b = 17/20$ $a + 4ab = a^2 + 4b^2 - 4b^2 + 4ab$

$\to (a+2b)^2 - 2b^2 + b = 17/20 \to \frac{4b}{a} = \frac14 \to |x_1 - x_2| = \sqrt{1+\frac14} = \sqrt5/2$

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

$x , x+2$ $P = a = x^2+2x$ $a = 1\times3 = 3$ $x = \cancel{\pm}1$

$x^2 - (3a+1)x + b = 0 \to a = 3 \to x^2 - 10x + b = 0$

$2k , 2k+2$

$S = 2k + (2k+2) = 10 \to 4k+2 = 10 \to k = 2$ $b = 4\times6 = 24$

اختلاف ضرایب $= 24 - 3 = 21$

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$\alpha^2+\beta^2 \to \alpha+\beta = 1 \to (\alpha+\beta)^2 = \alpha^2+\beta^2+2\alpha\beta = 1$

$\to \alpha\beta = -1-m^2$ $\alpha^2+\beta^2 = 1-2\alpha\beta \to 1+2(1+m^2)$

$\to 3 + 2m^2 = \alpha^2+\beta^2 \xrightarrow[m=0]{\text{کمترین مقدار}} \alpha^2+\beta^2 = 3$

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$x_S = \frac{3+(-5)}{2} = -1 \to y = k(x+1)^2 + 1$ $a = -1-d \Rightarrow b = -1+d$

$a^2+b^2 = (-1-d)^2 + (-1+d)^2 = 2(1+d^2) \to 2(1+d^2) = 5 \to d^2 = 3/2$

$0 = k(d)^2 + 1 \to k = -2/3 \to y = -2/3(x+1)^2 + 1$ $y = 0 \leftarrow$ ریشه‌ها محور

برخورد با محور $y \to x = 0 \to y = -\frac23(1) + 1 = \frac13$