$x^2+x-1-m^2=0$ $\alpha\beta$ $\min(\alpha^2+\beta^2)$

$-m^2-1 \Rightarrow -1$
$\max \Rightarrow -1$

$(\alpha+\beta)^2-2(\alpha\beta)$
$\frac{-1}{}$ $\quad -2(\underbrace{\alpha\beta}_{\max}) \Rightarrow 1-2(-1)=3$

۹

$A(2,\underline{b}), B(-5,\underline{a})$ عرض راس سهمی $\quad$ $\alpha\beta$ ریشه $\quad$ $\alpha^2+\beta^2=5$ $\quad$ محور y ها را قطع می‌کند

$\frac{2+(-5)}{2}=-1$ طول سهمی $\quad$ $\frac{-2a}{a}-\frac{2c}{a}=5$ $\quad$ $V=-\frac{2c}{a} \Rightarrow 2a=-2c$

$ax^2+bx+\underline{c}$: $\quad \frac{-b}{2a}=-1 \Rightarrow 2a=-b \Rightarrow b=2a$

$ax^2+2ax+c$

$\Rightarrow -\frac{\Delta}{4a} \Rightarrow \frac{4a^2-4ac}{-4a}=1 \Rightarrow -2a+2c=2$

$9a-4a-c=25a-10a+c$

$\frac{2a+2c=0}{-9a=2} \Rightarrow a=-\frac{2}{9}$

۹

$-\frac{2}{9}x^2-\frac{4}{9}x+c=1$

$\Rightarrow -1 \Rightarrow \frac{2}{9}-\frac{4}{9}\times(\frac{1}{2}+c)=1 \Rightarrow c=\frac{1}{2}$

سؤال ۶

$x^2+4x-a=0$ $\quad \alpha<\beta<0$ $\quad 2\alpha^2+2\beta^2=12\sqrt{2}-8\sqrt{5}$ $\quad \alpha=?$

$12\sqrt{2}-8\sqrt{5}=\frac{5}{2}(2^2-2\alpha)+\frac{1}{2}(-4\sqrt{5})$ $\quad \frac{5}{2}(\alpha^2+\beta^2)+\frac{1}{2}(\alpha^2-\beta^2)$

$\underbrace{24\sqrt{2}}_{2}-\underbrace{120}_{12}=\underbrace{180}_{18}-10\alpha \underbrace{-4\sqrt{5}}_{-4\sqrt{2}}$ $\quad \alpha^2+\beta^2=4-2\alpha \hookrightarrow -4\sqrt{5}$

$10\alpha=10$

$\hookrightarrow \alpha=1$

نمره‌ی امتحانی

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$3x^2 - ax + 4 \qquad \alpha', 3\alpha' =$

$\frac{a}{3} = 4a' \qquad \frac{4}{3} = 3a'^2 \Rightarrow 9a'^2 = \frac{4}{9} \Rightarrow a' = \pm\frac{2}{3}$

$12a' = a \Rightarrow -\frac{2}{3} \times 12 = (-8) \qquad 12 \times \frac{2}{3} = 8 \Rightarrow 16$

۲

$\sqrt{\frac{1}{a}} + \sqrt{\frac{1}{b}} = 5 \qquad \frac{2}{m} = 6 \Rightarrow -2$

$\frac{1}{a} + \frac{1}{b} + 2\sqrt{\frac{1}{ab}} = 25$

$\frac{a+b}{ab}$ ... 12

$\frac{\frac{m+14}{36}}{\frac{1}{36}} = m + 14 + 12 = 25 \Rightarrow -1$

۲

$4x^3 + kx^2 - 9x - 2 = 0$

$\alpha + \beta = 1$

$\alpha\beta = -2 \Rightarrow \beta = \frac{-2}{\alpha} \Rightarrow \alpha + \frac{-2}{\alpha} = 1 \Rightarrow \alpha^2 - \alpha - 2 = 0 < {2 \atop -1} \Rightarrow 32 + 4k - 18 - 2 = \Rightarrow -3$

$\Rightarrow -4 + k + 9 - 2 = \Rightarrow -3$

۲

$x^2 + 6x + a = 0 \qquad \alpha < \beta < 0 \qquad 2\alpha^2 + 2\beta^2 = 1372 + 85 \qquad a = ?$ پشت صفحه

$x^4 - 7x^2 - 5 = 0$ مجموع $= S$ حاصلضرب $= P$ $\qquad 2P^2 - 2SP + 2S \Rightarrow 2\left(\frac{7+\sqrt{69}}{2}\right)^2 \Rightarrow \frac{49 + 69 + 14\sqrt{69}}{2}$

$b^2 - 7b - 5 = 0 \qquad 59 + 7\sqrt{69}$

$\frac{+7 \pm \sqrt{49 - 4(-5)}}{2} \qquad \frac{7 - \sqrt{69}}{2} < 0 \Rightarrow \pm\sqrt{\frac{7+\sqrt{69}}{2}} \Rightarrow S = 0 \quad P = -\frac{(7+\sqrt{69})}{2}$

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$2x^2 - ax + b = 0 \qquad 2ax^2 + ax - 6 = 0 \qquad \left[\frac{ab}{4}\right]$

$(\alpha + \frac{1}{2})(\beta + \frac{1}{2}) \qquad \frac{-a}{2a} = -\frac{1}{2} \qquad \frac{-6}{2a} \Rightarrow (-3)$

$\alpha\beta + \frac{1}{4} + \frac{1}{2}(\alpha+\beta) \qquad -\frac{1}{2} + 2(\frac{1}{2}) = \frac{1}{2} \qquad \frac{+a}{2} = \frac{1}{2} \Rightarrow a = 1$

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

۲

اختلاف ریشه‌ها

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

$\frac{+a}{a} = 1 \qquad 2\beta^2 + \alpha^2 - \beta = \frac{17}{20}$

$\frac{-b}{a} \qquad x^2 = \frac{ax+b}{a} \Rightarrow \beta^2 = \frac{a\beta + b}{a} \Rightarrow 2\frac{(a\beta + b)}{a} + \frac{(a\alpha + b)}{a} - \beta = \frac{17}{20}$

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$2(\beta + \frac{b}{a}) + \alpha + \frac{b}{a} - \beta$

$\frac{\sqrt{a^2 + 4(ab)}}{|a|} \Rightarrow a^2 + 4a \times -\frac{3}{4}a \qquad \beta + \alpha + \frac{3b}{a} = \frac{17}{20} \Rightarrow \frac{3b}{a} = \frac{-3}{20} \Rightarrow \frac{b}{a} = \frac{-3}{40}$

$\frac{\sqrt{\frac{7}{10}a}}{|a|} = \frac{\sqrt{\frac{7}{10}}}{|a|} \Rightarrow \sqrt{\frac{7}{10}} \qquad b = -\frac{3}{40}a$

$x^2 - (a+1)x + a = 0$ اعداد متوالی طبیعی α, β اختلاف حاصل‌ضرب ریشه‌ها $\qquad 2\alpha + 2 = 2\alpha + 2 \Rightarrow \alpha = 4$

$x^2 - (3a+1)x + b = 0$ اعداد زوج متوالی $\qquad b = \alpha^2 + 2\alpha \qquad 2 + \alpha = 6$

$a = (\alpha)(\alpha + 2) \Rightarrow \alpha^2 + 2\alpha = a \qquad 24 \Rightarrow 24 - 3 = (21)$

$a + 1 = 2\alpha + 2 \qquad 2 + 2\alpha = a + 1 \qquad 1\checkmark \; -3 \; 1, 3 \Rightarrow (3)$

$\alpha^2 - 2 = -1 \Rightarrow a^2 - 1 = 0 < {1 \atop -1}$

۲

$\alpha = 1 - \beta \qquad 40\beta^2 + 20(1-\beta)^2 - 20\beta = 17 \Rightarrow 20\beta(\beta - 1) = -1 \rightarrow \alpha\beta = \frac{1}{20} = \frac{-b}{a} \qquad (7$

$\Rightarrow a = -20b \qquad ax^2 - ax - b = 0 \rightarrow -20bx^2 + 20bx - b = 0 \qquad |\alpha - \beta| = \frac{\sqrt{\Delta}}{|a|} = \frac{2}{\sqrt{5}}$