محمدحسین ایروانی

۲۵ آفرین!

-۱ ۲

$4\alpha=\frac{a}{3}$

$3\alpha^2=\frac{4}{3}$ $\quad \alpha=\pm\frac{2}{3}$ $\quad \alpha=\frac{2}{3}\Rightarrow a_1=8$, $\alpha=-\frac{2}{3}\Rightarrow a_2=-8$ $\Rightarrow a_1-a_2=16$

-۲ ۲

$\sqrt{\frac{1}{\alpha}}+\sqrt{\frac{1}{\beta}}=5$ $\quad \alpha\beta=\frac{1}{36}$

$-x^2+3x+2=0$ $\quad S=-2$

$\frac{1}{\alpha}+\frac{1}{\beta}+\frac{2}{\sqrt{\alpha\beta}}=25$

$\frac{\alpha+\beta}{\alpha\beta}+\frac{2}{\sqrt{\alpha\beta}}=25$ $\quad 36(\alpha+\beta)+12=25$ $\quad 36\left(\frac{m+14}{36}\right)=13$ $\quad m=-1$

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$4x^3+Kx^2-9x-2=4(x-\alpha)(x-\beta)(x-\gamma)$

$-4\underbrace{\cancel{\alpha\beta}}_{-2}\gamma=-2$ $\quad \gamma=-\frac{2}{8}=-\frac{1}{4}$

$K=4(\underbrace{\cancel{-\alpha-\beta-\gamma}}_{-\frac{3}{4}})$

$K=-3$

-۴ ۲

$\frac{5}{2}(\alpha^2+\beta^2)+\frac{1}{2}(\alpha^2-\beta^2)=12\sqrt{2}+85$ $\quad S=6$

$|\alpha-\beta|=\frac{\sqrt{36-4a}}{1}$

$\frac{5}{2}(36-2a)+\frac{1}{2}(\alpha-\beta)(-6)=12\sqrt{2}+85$ $\quad \alpha-\beta=-\sqrt{36-4a}$

$90-5a+3\sqrt{36-4a}=12\sqrt{2}+85$

$a\in Q\Rightarrow 90-5a=85\Rightarrow\boxed{a=1}$

$36-4a=32\Rightarrow a=1$

-۵ ۲

$t^2-7t-5=0$ $\quad x^2 < \frac{7+\sqrt{69}}{2}$, $\frac{7-\sqrt{69}}{2}$ غ ق ق $\quad S=0$ $\quad P=\frac{-7-\sqrt{69}}{2}$

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$2P^2-3SP+2S=\cancel{2}\left(\frac{\cancel{49+69}+14\sqrt{69}}{\cancel{4}\,2}\right)+0+0=59+7\sqrt{69}$

-۶ ۲

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

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

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

$(\alpha+\frac{1}{2})(\beta+\frac{1}{2})=\alpha\beta+\frac{1}{2}(\alpha+\beta)+\frac{1}{4}=-3+\frac{1}{2}\times(-\frac{1}{2})+\frac{1}{4}=-3=\frac{b}{2}\Rightarrow b=-6$

$[\frac{-6}{4}]=-2$

-۷ ۲

$\alpha+\beta=\frac{a}{a}=1$

$\alpha=1-\beta$

$|\alpha-\beta|=\frac{2}{\sqrt{5}}=\frac{2\sqrt{5}}{5}$

$2\beta^2+(1-\beta)^2-\beta=\frac{17}{20}$

$3\beta^2-3\beta+\frac{3}{20}=0$ $\quad \beta^2-\beta+\frac{1}{20}=0$ $\quad \beta=\frac{1\pm\sqrt{1-\frac{1}{5}}}{2}$ < $\frac{1}{2}+\frac{1}{\sqrt{5}}$, $\alpha=\frac{1}{2}-\frac{1}{\sqrt{5}}$; $\frac{1}{2}-\frac{1}{\sqrt{5}}$, $\alpha=\frac{1}{2}+\frac{1}{\sqrt{5}}$

$\alpha(\alpha+۲)=a$ ۲ ۸-

$\alpha+\alpha+۲=a+۱$

$\alpha^{۲}+۲\alpha-۲\alpha=۱$

$\alpha \begin{cases} ۱ \\ -۱ \text{ غ ق ق} \end{cases}$

$\left.\begin{array}{l}\alpha=۱ \Rightarrow a=۳ \\ \alpha+۲=۳\end{array}\right\} \Rightarrow ۳\times۱=۳$

$\beta+\beta+۲=۱۰$

$\left.\begin{array}{l}\beta=۴ \\ \beta+۲=۶\end{array}\right\} ۶\times۴=۲۴$

$۲۴-۳=۲۱$

$\alpha^{۲}+\beta^{۲}=(\alpha+\beta)^{۲}-۲\alpha\beta=(-۱)^{۲}+۲+۲m^{۲}=۲m^{۲}+۳\geqslant\boxed{۳}$ ۲ ۹-

$x_{ext}=\frac{-۵+۳}{۲}=-۱$ ۱۰-

$y_{ext}=۱$

$y=a(x+۱)^{۲}+۱$ ۲

$y=ax^{۲}+۲ax+a+۱$

$\alpha^{۲}+\beta^{۲}=۵$

$\left(\frac{-۲a}{a}\right)^{۲}-۲\times\left(\frac{a+۱}{a}\right)=۵$

$۴-۲-\frac{۲}{a}=۵$

$-\frac{۲}{a}=۳ \quad a=-\frac{۲}{۳} \Rightarrow y=-\frac{۲}{۳}x^{۲}-\frac{۴}{۳}x+\frac{۱}{۳}$

$x=۰ \Rightarrow y=\frac{۱}{۳}$