۱۷, ۵

موضوع: علی یخزان - ردیف ۱۹ تاریخ: / /

$\frac{c}{a} = \alpha.\beta = \frac{k}{3} \Rightarrow 3\beta.\beta = 3\beta^2 = \frac{k}{3} \Rightarrow \beta^2 = \frac{k}{9} \Rightarrow \beta = \pm\frac{2}{3} \quad -1$

$\alpha = 3\beta$ (۲)

اگر $\beta = +\frac{2}{3} \Rightarrow \alpha = 2 \Rightarrow \alpha + \beta = \frac{a}{3} = \frac{1}{3} \Rightarrow a = 1$

اگر $\beta = -\frac{2}{3} \Rightarrow \alpha = -2 \Rightarrow \alpha + \beta = \frac{a}{3} = -\frac{1}{3} \Rightarrow a = -1$

$1 - (-1) = 14$ ✓

$\frac{1}{\sqrt{\alpha}} + \frac{1}{\sqrt{\beta}} = 4 \Rightarrow \frac{\sqrt{\beta} + \sqrt{\alpha}}{\sqrt{\alpha\beta}^{\frac{1}{4}}} = 4 \quad -2$ (۲)

$\left(\sqrt{\beta} + \sqrt{\alpha} = \frac{4}{4}\right)^2 \Rightarrow \alpha + \beta + 2\sqrt{\alpha\beta}^{\frac{1}{2}} = \frac{24}{36} \Rightarrow \alpha + \beta = \frac{13}{36}$

$\Rightarrow \frac{m + 12}{36} = \frac{13}{36} \Rightarrow m = 1$

$mx^2 + 3x + 2 = 0 \Rightarrow -x^2 + 3x + 2 = 0 \Rightarrow \frac{c}{a} = -2$ ✓

$S=1 \quad P=-2$

$$4\alpha^3+k\alpha^2-9\alpha-2=0 \quad -3$$
$$+\quad 4\beta^3+k\beta^2-9\beta-2=0 \quad (2)$$

$$4(\alpha^3+\beta^3)+k(\alpha^2+\beta^2)-9(9+\beta)-4=0$$
$$4(1-3(-2))+k(1-2(-2))-9(1)-4=0$$

$$\Rightarrow 28+5k-14=0 \quad 5k=-14 \Rightarrow \boxed{k=-3} \checkmark$$

$$12\alpha^2+10\alpha^2+3\beta^2-5\beta^2= \quad -4$$

(1)

$$12(\alpha^2+\beta^2)+10(\alpha^2-\beta^2)=12(34-2a)+10(-4)(\sqrt{34-5a}) \checkmark$$

$$=12\sqrt{2}+18 \Rightarrow 9(11-a)-36\sqrt{9-a}=12\sqrt{2}+18$$

$$90-9a-6\sqrt{9-a}=12\sqrt{2}+18 \Rightarrow a=\frac{-120\sqrt{2}-96}{-120\sqrt{2}+144}$$

$S=-4 \quad P=a$

$$\alpha,\beta=\frac{-4\mp\sqrt{34-2a}}{2} \xrightarrow{\alpha<\beta} \alpha=-3-\sqrt{9-a}$$

$$\alpha^2+2(\alpha^2+\beta^2)=\alpha^2+2(S^2-2P)$$

$$(-3-\sqrt{9-a})^2+2(34-2a)=12\sqrt{2}+18a \rightarrow a=1$$

۵- $x^4 - 7x^2 - 45 = 0 \rightarrow t^2 - 7t - 45 = 0$

$\rightarrow t = \frac{7 \pm \sqrt{49 + 180}}{2} = \frac{7 \pm \sqrt{49}}{2}$ ✗✗✗ (۲)

$t = \frac{7 + \sqrt{49}}{2}$

$\rightarrow x = \pm\sqrt{\frac{7 + \sqrt{49}}{2}} \rightarrow x_1 + x_2 = 0 \rightarrow S = 0$

$P = (x_1 \cdot x_2)^2 = \left(\frac{7 + \sqrt{49}}{4}\right)^2 \Rightarrow 2P^2 = \frac{(7 + \sqrt{49})^2}{2}$ ✓

۶- $2ax^2 + ax - 4 = 0 \rightarrow -\frac{b}{a} = S = \frac{1}{2}, P = -2$ (۲)

$\rightarrow \frac{a}{2} = -\frac{1}{2} + 1 \rightarrow a = 1$

$(\alpha + \frac{1}{2})(\beta + \frac{1}{2}) = \frac{b}{2} \rightarrow -2 + 0 = \frac{b}{2} \rightarrow b = -4$

$\left[\frac{-4}{4}\right] = -1$ ✓

$\alpha+\beta=1 \rightarrow 20\beta^2+20(\alpha^2+\beta^2)-20\beta=17$ — ۷

$\rightarrow 20\beta(\beta-1)+20(\alpha^2+\beta^2)=17 \rightarrow$ (۱٫۵)

$-20\alpha\beta+20(\alpha+\beta)^2=17 \rightarrow 20(-b)+20(1+2b)=17$

$\rightarrow b=\frac{-3}{20} \rightarrow \alpha-\beta=\sqrt{\alpha^2+\beta^2-2\alpha\beta}=\sqrt{\frac{7}{10}-2\left(\frac{-3}{20}\right)}=\sqrt{\frac{5}{4}}$

$x^2-(a+1)x+a=0$ — ۸

(۲)

$\alpha-\beta=\frac{\sqrt{\Delta}}{|a|}=a-1 \Rightarrow a=3$

$x^2-\left(\frac{3}{5}a+1\right)x+b=0 \rightarrow \alpha'-\beta'=\frac{\sqrt{\Delta}}{|a'|}=\sqrt{100-4b}=2$

$\rightarrow b=24 \rightarrow |(\alpha-\beta)-(\alpha'-\beta')|=24-3=21$

$\Delta>0 \rightarrow 1-4(-1-m^2)=1+4+4m^2>0$ — ۹

$\rightarrow 4m^2>-5$ ✓ → هر عددی برای m برقرار است (۲)

$\alpha^2+\beta^2=S^2-2P=2m^2+3 \rightarrow 2(0)^2+3=3$ ✓

۱۰ ـ راس سهمی $\begin{vmatrix} x \\ y \end{vmatrix} \rightarrow x = \frac{3-5}{2} = -1 \rightarrow \frac{\alpha+\beta}{2} = -1 \rightarrow \alpha+\beta = -2$

(۱) $\alpha^2+\beta^2 = 5 \rightarrow 2\alpha\beta = (\alpha+\beta)^2 - (\alpha^2+\beta^2) = 4-5 = -1$

$\rightarrow \alpha\beta = -\frac{1}{2}$ ✓ $\rightarrow x^2+2x-\frac{1}{2} = y$ ~~$y = \frac{1}{2}$~~

شیب خط روحساب نمردی !

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$S = \alpha + \beta = 1 \rightarrow \alpha = 1 - \beta$

$۴۰\beta^۲ + ۲۰(1-\beta)^۲ - ۲۰\beta = ۱۷ \rightarrow ۲۰\beta^۲ - ۲۰\beta + ۱ = ۰$

$۲۰\beta(\beta - 1) = -1 \rightarrow -۲۰\alpha\beta = -1 \rightarrow \alpha\beta = \frac{1}{۲۰} = \frac{-b}{a} \rightarrow a = -۲۰b$

$-۲۰\beta m^۲ + ۲۰\beta m - \beta = ۰ \rightarrow |\alpha - \beta| = \frac{\sqrt{۵}}{|a|} = \boxed{\frac{۲}{\sqrt{۵}}}$

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طول راس $= \frac{۳-۵}{۲} = -1$ $\quad ext(-1, 1)$

$y = a(1+m)^۲ + 1 = am^۲ + ۲am + a + 1 \rightarrow \begin{cases} P = \frac{a+1}{a} \\ S = -۲ \end{cases}$

$\alpha^۲ + \beta^۲ = S^۲ - ۲P = (-۲)^۲ - ۲(\frac{a+1}{a}) \rightarrow \boxed{a = \frac{-۲}{۳}}$

طرف ازمبدا $= a + 1 = \boxed{\frac{۱}{۳}}$