Date: ....

یلدا انوری _ دهم B

۱_ $x^2-5x+2=0 \to \alpha^2-5\alpha+2=0$ $\qquad \alpha\beta=2$

$\frac{4}{\alpha^3} \qquad \beta^2-5\beta+2=0 \qquad \alpha+\beta=5$

$$\frac{4\alpha+\beta^5}{5\beta^2}=\frac{4\alpha}{5\beta^2}+\frac{\beta^3}{5}=\frac{\alpha^3+\beta^3}{5}=\frac{(\alpha+\beta)^3-3\alpha\beta(\alpha+\beta)}{5}=$$

$$=\frac{5^3-3\times2\times5}{5}=19$$

۲_ $\begin{vmatrix}-1.5\\-4\end{vmatrix}$, $\begin{vmatrix}3\\-4\end{vmatrix}$ $\qquad \frac{-b}{a}=? \qquad \frac{3-1.5}{2} \to \frac{-b}{2a}=\frac{1.5}{\cancel{2}}$

$\to \frac{-b}{a}=? \qquad 1.5$

۳_ مقدار $\left[\frac{k^2}{2}\right]$

$x^2+2kx+5=0 \to \Delta=4k^2-20 \quad 4(k^2-5)$

$$\frac{\sqrt{\Delta}}{|a|}=\frac{4}{3}k \to 4k^2-20=\frac{16}{9}k^2 \to \frac{20}{9}k^2=20 \to k^2=9 \to \left[\frac{k^2}{2}\right]=\left[\frac{9}{2}\right]=4$$

۴_ $A=\begin{pmatrix}3\\-4\end{pmatrix}$ $\quad B=\begin{pmatrix}-5\\y\end{pmatrix}$ $\qquad \frac{-\Delta}{4a}=1$

$$\alpha^2+\beta^2=5 \to (\alpha+\beta)^2-2\alpha\beta=5 \to 4-2\alpha\beta=5 \to \alpha\beta=\frac{-1}{2} \sim \frac{c}{a}$$

$$\frac{-b}{2a}=\frac{3-5}{2} \to \frac{-b}{2a}=-1 \to \frac{-b}{a}=-2$$

$$y=a\left(x^2+2x-\frac{1}{2}\right) \Rightarrow 1=a\left(1-2-\frac{1}{2}\right)=$$

$$=\frac{-3}{2}a=1 \to a=\frac{-2}{3} \to c=\frac{-2}{3}\times\frac{-1}{2}=\frac{1}{3}$$

Date: ....

۵- $-x^2+5x+m=0$ $\quad x=\frac{9}{2} \to -(\frac{9}{2})^2+5\times\frac{9}{2}+m<0$

$\alpha,\beta<\frac{9}{2}$ $\quad$ $\alpha \quad \beta$ $\quad - \mid + \mid -$ $\quad = \frac{-81}{4}+\frac{45}{2}+m<0 \to m<\frac{-9}{4}$

$\Delta>0 \Rightarrow 25-4\times1\times m>0 \to 25+4m>0 \to m>\frac{-25}{4}$ $\quad \frac{-25}{4}<m<\frac{-9}{4} \to -3,-4,-5,-6$

$\alpha<0$ $\quad$ ۴ عدد

۶- $y=mx^2-12x+5m-1$ $\quad y_{min}=2=\frac{-\Delta}{4a}=2 \to -144+20m^2-4m=8m$

$\to 20m^2-12m-144=0 \to 5m^2-3m-36=0 \to \frac{-b\pm\sqrt{\Delta}}{2a}=\frac{3\pm\sqrt{9+4\times3\times36}}{10}=$

$=\frac{3\pm21}{10} \to \frac{24}{10},\frac{-18}{10}$ $\quad x=\frac{-b}{2a}=\frac{12}{6}=2$

۷- α,β $\quad x^2+2(\alpha+1)x+2\alpha-1=0$

$\frac{2\alpha-1}{1}$ $\quad \alpha\beta=\alpha^2$ $\quad 2\alpha-1=\alpha^2 \Rightarrow \alpha^2-2\alpha+1=0 \to (\alpha-1)^2=0 \to \boxed{\alpha=1}$

۸- $x^4-7x^2-5=0$ $\quad t=x^2 \to t^2-7t-5=0$

$2P^2-3\cancel{S}P+2\cancel{S}=?$ $\quad t=\frac{-b\pm\sqrt{\Delta}}{2a}=\frac{7\pm\sqrt{49+20}}{2}=7\pm\sqrt{69}$

$2\times(7+\sqrt{69})^2=2\times(49+69+14\sqrt{69})$ $\quad \sqrt{t}=\sqrt{7\pm\sqrt{69}} \to$ غیرقابل $=0=S$

$=59+7\sqrt{69}$ $\quad \sqrt{7+\sqrt{69}}\times\sqrt{7+\sqrt{69}}=\sqrt{(7+\sqrt{69})^2}=\frac{-7\pm\sqrt{69}}{2}=P$

۹- $y=kx^2-4x-6 \to S\left|\begin{matrix}\frac{-b}{2a}\\ \frac{-\Delta}{4a}\end{matrix}\right. \Rightarrow S\left|\begin{matrix}\frac{2}{k}\\ \frac{-(16+24k)}{4k}\end{matrix}\right. \Rightarrow S\left|\begin{matrix}\frac{2k}{}\\ \frac{-4-6k}{k}\end{matrix}\right.$

$-4(\frac{2}{k})-4=\frac{-4+6k}{k} \to \frac{-8-4k}{k}=\frac{-4-6k}{k} \to \frac{-4+2k}{k}=0 \to 2k-4=0 \to$

$\to k=2 \Rightarrow \frac{-4-6k}{k}=\frac{-4-12}{2}=-8$

-۱۰

$$-mx^2 + mx + 1 = -m - x$$

$$mx^2 + (-m-1)x + 1 - m = 0$$

$$\Delta < 0 \longrightarrow -(m+1)^2 - 4\times m(1-m) < 0 \longrightarrow m^2 + 1 + 2m + 4m + 4m^2 < 0$$

$$\to 5m^2 + 6m + 1 < 0$$

$$(m+1)(5m+1) < 0$$

	-1		$-\frac{1}{5}$	
$+$	0	$-$	0	$+$

$$m \in \left(-1, -\frac{1}{5}\right)$$

عدد صحیح نیست