(۲۴) دهم سر β امیرعلی ... ۱۴

-۱

الف) $y = 2x^2 - 4x + 1 \Rightarrow ext \left| \begin{array}{l} \frac{-b}{2a} \to 1 \\ \frac{-\Delta}{4a} \to -1 \end{array} \right. \quad (1, -1)$ ✓

ب) $-2x^2 + 3x - 5 \Rightarrow ext \left| \begin{array}{l} \frac{-b}{2a} \to -\left(\frac{3}{-4}\right) = \frac{3}{4} \\ \frac{-\Delta}{4a} \to -\frac{(9 - 4(-2)(-5))}{-8} = \frac{-31}{8} \end{array} \right.$ ✓ $\left| \begin{array}{l} \frac{3}{4} \\ -\frac{31}{8} \end{array} \right.$

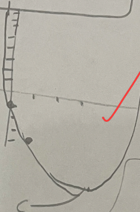
۲

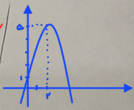
-۲ ۱

الف) $x^2 - 6x + 1 \Rightarrow$

x	1	-1	0
y	-4	8	1

$ext \left| \begin{array}{l} 3 \\ -8 \end{array} \right.$





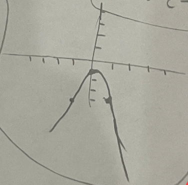
ب) $-x^2 + 4x + 1 \Rightarrow$

x	1	-1	0
y	4	-4	1

ب) $y = -x^2 + 4x + 1 \to a < 0 \to max \; ext \left| \begin{array}{l} x_s = \frac{-b}{2a} = \frac{-4}{-2} = 2 \\ y_s = -4 + 8 + 1 = 5 \end{array} \right.$

-۳

$\alpha\beta = -2 \; , \; \alpha + \beta = 1 \quad \left\{ \begin{array}{l} \alpha = 2 \\ \beta = -1 \end{array} \right.$



$\Rightarrow -4 + k + 9 - 2 = 0 \; \left| \; k + 3 = 0 \right.$

$k = -3$ ✓

۲

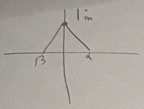
-۴

$\sqrt{\alpha} - \sqrt{\beta} = 1 \Rightarrow \alpha + \beta - 2\sqrt{\alpha\beta} = 1$

$\Rightarrow 3m - 2\sqrt{m} = 1$

$\Rightarrow m = 1 \Rightarrow 2m^2 - m - 1 = 0 \quad \frac{c}{a} = -\frac{1}{2}$ ✓

۲



۵

$\alpha+\beta=-\frac{۶}{۲\omega a}$ ، $\alpha\beta=\frac{b}{۲\omega a}$ $\Rightarrow ۲\omega a^{۲}-۲\omega a b=۶$ ، $۲\omega a^{۲}b=b$ -۹

$\Rightarrow ۲\omega a^{۲}=۱ \Rightarrow a=\pm\frac{۱}{\omega}$ $\Rightarrow ۲\omega a b=-\omega$ ، $۲\omega\times\frac{۱}{\omega}\times b=۲b=-۱$

$۲\omega a b=-\omega$ ، $۲\omega\times-\frac{۱}{\omega}\times b=۲b=۱$

$b\Rightarrow\alpha$

$b=-۱$ ✗

$b=۱$ ✓ $\Rightarrow \alpha=-\frac{۱}{\omega}$ ، $\beta=۱$

۲

$a+b=-\frac{b}{a}$ $\Rightarrow a+b=-a^{۲}-b^{۲}+۱$ $\Rightarrow a^{۲}+a+b^{۲}+b-۱=۰$

$\Rightarrow a^{۲}+a-۶+b^{۲}+b-۶=۰ \Rightarrow (a+۳)(a-۲)+(b+۳)(b-۲)=۰$

۱

$\Rightarrow a$ α α b -۳ ۲ $a+b=-۱$

$x^{۲}-(a^{۲}+b^{۲}-۱۲)x+a+b-۱=۰$

$S=-\frac{b}{a}$ $P=ab$

$\rightarrow \begin{cases} a^{۲}+b^{۲}-۱۲=-\frac{b}{a} \rightarrow S^{۲}-۲P-۱۲=S & (I) \\ a+b-۱=ab \rightarrow S-۱=P & (II) \end{cases}$

$\rightarrow S^{۲}-۲(S-۱)-۱۲=S \rightarrow S^{۲}-۳S-۱۰=۰ \rightarrow (S-۵)(S+۲)=۰ \rightarrow \begin{cases} S=-۲ & \times \\ S=۵ & \checkmark \end{cases}$

$y=-ax^{۲}+ax+۲ \rightarrow S\left(\frac{۱}{۲}, \frac{a^{۲}+۸a}{۲a}\right)$

$y=۲bx^{۲}-bx-۱ \rightarrow S\left(\frac{۱}{۲}, \frac{b^{۲}+۸b}{-۸b}\right)$

$\rightarrow ۲b\left(\frac{۱}{۲}\right)-b\left(\frac{۱}{۲}\right)-۱=\frac{a}{۴}+۲ \rightarrow \frac{a}{۴}=-۲$

$a=-۱۲$

$-\frac{a}{۱۶}+\frac{a}{۴}+۲=\frac{b}{۸}-۱ \rightarrow \frac{۱۲}{۱۶}=\frac{b}{۸} \rightarrow b=-۶$

$b-a=-۶-(-۱۲)=۶$