Subject : ( )

Date :

عاشقِ سعادت باشا

① $x_s = \frac{-b}{2a} = \frac{-3}{-4} = \frac{3}{4}$

$y_s = -\frac{\Delta}{4a} = -\frac{(9-4(-2)(-4))}{-8} = -\frac{31}{8}$

ب) Max

$x_s = \frac{-b}{2a} = \frac{-4}{4} = 1$

$y_s = 2(1)-4(1)+1 = -1$

الف) Min

② $y = x^2 - 6x + 1$

$\Delta = 36 - 4 = 32$

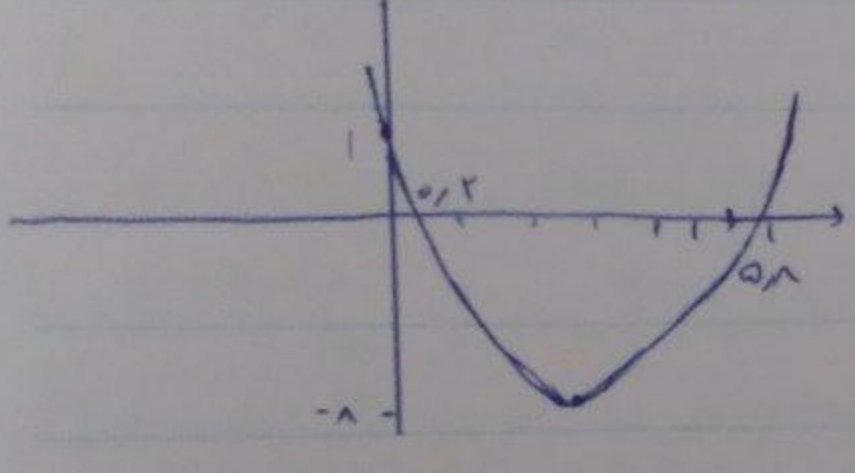
$\sqrt{\Delta} = \sqrt{32} = 4\sqrt{2}$

$x_1 = \frac{6-4\sqrt{2}}{2} = \frac{4(3-2\sqrt{2})}{4} = 3-2\sqrt{2} \simeq 3-2,8 = 0,2$

$x_2 = 3+2\sqrt{2} \simeq 5,8$

$x_s = \frac{6}{2} = 3$

$y_s = -8$



ب) $y = -x^2 + 4x + 1$

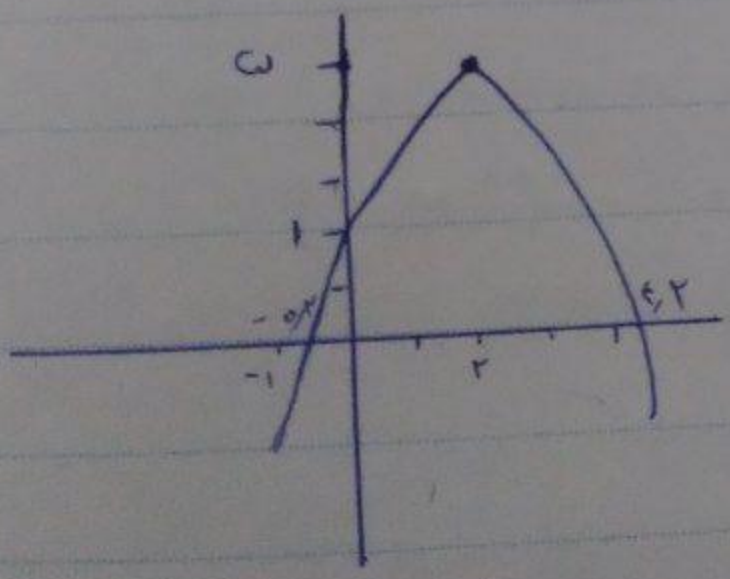
$\Delta = 16 - 4(-1)(1) = 20$

$x_1 = \frac{-4-2\sqrt{5}}{-2} = \frac{-2(2+\sqrt{5})}{-2} = 2+\sqrt{5} \simeq 4,2$

$x_2 = 2-\sqrt{5} \simeq -0,2$

$x_s = \frac{-4}{-2} = 2$

$y_s = 5$



③

$\alpha+\beta=1$, $\alpha\beta=-2$ $\rightarrow$ $\beta=2$, $\alpha=-1$ $\xrightarrow{\text{جایگذاری}}$ $-2+k+9-2=0 \rightarrow k+2=0 \rightarrow k=-2$

④

$x^2-2mx+m=0 \quad m=-\frac{1}{2} \rightarrow 2x^2+\frac{1}{2}x-\frac{1}{2}=0$

$\rightarrow 8x^2+2x-2=0 \quad x^2+2x-1=0 \quad (x-2)(x+2)-\frac{8}{4}=1, \frac{-2}{4}=-\frac{1}{2}$

$\frac{(x-2)}{4}\,\frac{(x+2)}{-2}$

حاصل ضرب ریشه‌های معادله‌ی جدید $\therefore 1x-\frac{1}{2}=-\frac{1}{2}$

⑤

$2x^2-(m+2)x+m=0 \xrightarrow{a+b+c=0} x=1, \frac{m}{2}-5=\frac{1}{2}\left|m\left(\frac{m}{2}-1\right)\right|$

مورد نظر: $y(0)=m$

$\rightarrow \left|m\left(\frac{m}{2}-1\right)\right|=\frac{3}{2} \rightarrow |m(m-2)|=3$ $\begin{cases} m=-1 \rightarrow \frac{m}{2}=-\frac{1}{2} \checkmark \\ m=3 \rightarrow \frac{m}{2}=\frac{3}{2} \end{cases}$

⑥

$x_s=-\frac{b}{2a}=\frac{-2}{2a} \qquad y_s=\frac{-\Delta}{4a}=\frac{4a^2-9}{4a}=a-\frac{9}{4}=\frac{7}{8} \rightarrow 8a^2-18=$

$7a-8a^2-2a-100$

$\Delta=49\omega \rightarrow a=\frac{-b\pm\sqrt{\Delta}}{2a}=\frac{7\pm\sqrt{49\omega}}{16}: a_1=2, a_2=-\frac{9}{8}$

$\therefore$ به ازای ۲ مقدار a

Subject : ( )

Date :

$x^2-(a+1)x+a=0 \rightarrow \begin{cases} x=1 \\ x=a \end{cases}$ ریشه‌های مشترک $\longrightarrow a=3$ (۷)

$x^2-10x+b=0$

$k+(k+2)=10 \rightarrow k=4 \rightarrow$ ریشه‌ها $4,6 \rightarrow 4\times6-3\times1=21$

$x_{s_1}=\frac{-b}{2a}=\frac{-a}{-2a}=\frac{1}{2}$ $\quad y_{s_1}=-a(\frac{1}{2})^2+a(\frac{1}{2})+2=\frac{9}{4}+2$ (۸)

$y_2=b(\frac{1}{2})^2-b(\frac{1}{2}).1 \rightarrow \frac{-b}{4}-1 \rightarrow \frac{a}{4}+2=\frac{-b}{4}-1 \rightarrow a+b=-12$

$b-a-b=-12-a \quad b-a=-12-a-a \Rightarrow b-a=-12-2a$

$\alpha+\beta=\frac{-b}{a}=\frac{-4}{2\omega\alpha} \quad \alpha\beta=\frac{c}{a}=\frac{\beta}{2\omega\alpha} \rightarrow \begin{cases} 2\omega\alpha^2=1-\alpha=\pm\frac{1}{\omega} \\ \beta=0 \rightarrow \alpha=\frac{-4}{2\omega\alpha} \rightarrow 2\omega\alpha^2=-4 \rightarrow \text{غ ق ق} \\ a^2=\frac{-4}{2\omega} \text{ غ ق ق} \end{cases}$ (۹)

$\rightarrow \begin{cases} \alpha=\frac{1}{\omega} \rightarrow \frac{1}{\omega}+\beta=\frac{-4}{\omega} \rightarrow \beta=-1 \quad \beta<\alpha \text{ ق ق} \\ \alpha=-\frac{1}{\omega} \rightarrow -\frac{1}{\omega}+\beta=\frac{4}{\omega} \rightarrow \beta=1 \quad \beta>\alpha \text{ ق ق} \end{cases}$

$y=-\omega x^2+4x+1 \rightarrow \begin{cases} x_s=\frac{-b}{2a}=\frac{2}{\omega}>0 \\ y_s=\frac{-\Delta}{4a} \xrightarrow[a<0]{\Delta>0} y_s>0 \end{cases} \rightarrow$ این سهمی در ناحیه اول قرار دارد

(۱۰)

$S=a+b=a^2+b^2-12 \rightarrow S=S^2-2P-12$

$P=ab=a+b-1 \rightarrow P=S-1$

$\Rightarrow S=S^2-2S+2-12$

$S^2-2S-10=0 \rightarrow \begin{cases} S=\omega \\ S=-2 \end{cases}$ $\xrightarrow{a,b \text{ اعداد طبیعی}}$ $S=\omega$ ق ق