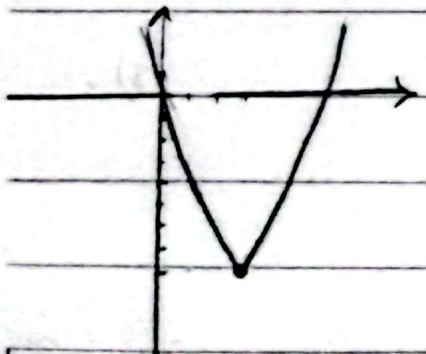
پاسخنامه تکلیف شماره ۲۴ :   هلنا عامری   دهم دفتر A.

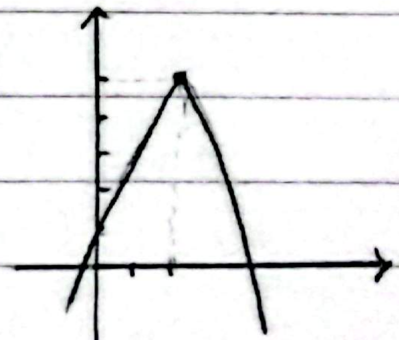
۱) الف) $y = 2x^2 - 4x + 1$ ext $\left|\begin{array}{l} \frac{-b}{2a} = \frac{4}{4} = 1 \\ 2(1)^2 - 4(1) + 1 = -1 \end{array}\right\}$ $\left|\begin{array}{l} 1 \\ -1 \end{array}\right.$ → سهمی min دارد. زیرا $a > 0$

ب) $y = -2x^2 + 3x - 5$ ext $\left|\begin{array}{l} \frac{-b}{2a} = \frac{-3}{-4} = \frac{3}{4} \\ \frac{-\Delta}{4a} = \frac{4ac - b^2}{4a} = \frac{40 - 9}{-8} = \frac{-31}{8} \end{array}\right\}$ $\left|\begin{array}{l} \frac{3}{4} \\ \frac{-31}{8} \end{array}\right.$ سهمی max دارد زیرا $a < 0$

۲) الف) $\left|\begin{array}{l} \frac{-b}{2a} = \frac{6}{2} = 3 \\ 9 - 18 + 1 = -8 \end{array}\right.$

ب) $\left|\begin{array}{l} \frac{-b}{2a} = \frac{-4}{-2} = 2 \\ -(2)^2 + 4(+2) + 1 = -4 + 8 + 1 = 5 \end{array}\right.$





۳) $4x^3+kx^2-9x-2=0 \qquad \alpha+\beta=1 \quad \alpha\beta=-2 \Rightarrow \begin{cases}\alpha+\beta+\gamma=\frac{-k}{4}\\ \alpha\beta+\alpha\gamma+\beta\gamma=\frac{-9}{4}\\ \alpha\beta\gamma=\frac{1}{2}\end{cases} \quad \boxed{\gamma=\frac{-1}{4}}$

$1+(-\frac{1}{4})=\frac{-k}{4} \Rightarrow \boxed{k=-3}$

۴) $x^2-3mx+m=0 \qquad m=\frac{-1}{2} \Rightarrow 2x^2+\frac{1}{2}x-\frac{1}{2}=0 \Rightarrow 4x^2+2x-2=0$

$x^2+2x-8=0 \quad (x-4)(x+2)$

حاصلضرب ریشه‌های معادله جدید $1\times\frac{-1}{2}=\frac{-1}{2}$ $\longleftarrow$ $\frac{4}{4}=1 \;,\; \frac{-2}{4}=\frac{-1}{2}$

۵- $2x^2-(m+2)x+m=0 \xrightarrow{a+b+c=0} x=1 \;,\; \frac{m}{2} \Rightarrow S=\frac{1}{2}\left|m(\frac{m}{2}-1)\right|$

$|m(m-2)|=3 \Rightarrow \begin{cases}m=-1 \Rightarrow \frac{m}{2}=\frac{-1}{2}\\ m=3 \Rightarrow \frac{m}{2}=\frac{3}{2}\end{cases} \quad \frac{-1}{2} \;,\; \frac{3}{2}$

۶- $x_S=\frac{-b}{2a}=\frac{-3}{2a} \qquad y_S=\frac{-\Delta}{4a}=\frac{4a^2-9}{4a}=a-\frac{9}{4}=\frac{7}{8} \Rightarrow 8a^2-18=7a \Rightarrow 8a^2-7a-18=0$

$\Delta=625 \Rightarrow a=\frac{-b\pm\sqrt{\Delta}}{2a}=\frac{7\pm\sqrt{625}}{16}=a_1=2 \;,\; a_2=\frac{-9}{8}$ $\quad \frac{a}{2}$ ق ق ۲ غ ق

۷) $x^2-(a+1)x+a=0 \begin{cases}x=1\\ x=a\end{cases} \xrightarrow{\text{فرض سوال}} a=3 \qquad x^2-10x+10=0$

$k+(k+2)=10 \quad \boxed{k=4} \Rightarrow 4 \;,\; 6 \Rightarrow 4\times6-3\times1=21$

۸) $x_{S_1}=\frac{-b}{2a}=\frac{-a}{-2a}=\frac{1}{2} \qquad y_{S_1}=-a(\frac{1}{2})^2+a(\frac{1}{2})+2=\frac{a}{4}+2$

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

$b-a=-12-a-a=b-a=\boxed{-12-2a}$

۹) $\alpha\beta=\frac{\beta}{25\alpha} \Rightarrow \alpha^2=\frac{1}{25} \Rightarrow \alpha=\frac{\pm1}{5} \qquad x=\alpha;\; 25\alpha\times\frac{1}{25}+4\alpha+\beta=0$

$5\alpha+\beta=0 \Rightarrow \beta=-5\alpha \qquad \beta>\alpha \begin{cases}\alpha=\frac{-1}{5}\\ \beta=1\end{cases} \quad y=-5x^2+4x+1$

$y_S=\frac{-\Delta}{4a} \;\; \frac{\Delta>0}{a<0} \;\; + \quad , \quad \frac{-b}{2a}=\frac{-4}{-10}=\frac{2}{5}$ $\quad$ در ناحیه اول

LINE NOTE

۱۰)

$$x^2-(a^2+b^2-12)x+(a+b-1)=0 \Rightarrow S=a^2+b^2-12=a+b$$

$$P=a+b-1=a\cdot b$$

$$a^2+b^2=(a+b)^2-2ab \rightarrow \underbrace{(a+b)}_{y}{}^2-2(\underbrace{a+b}_{y}-1)-12=\underbrace{a+b}_{y} \rightarrow y^2-3y-10=0$$

$$(\underbrace{y-5}_{\boxed{5}})(\underbrace{y+2}_{-2})=0$$

$$\boxed{a+b=5} \leftarrow \boxed{5}$$