آزاد صالحی

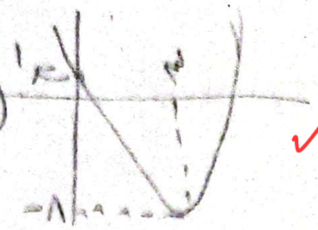
۱۹,۲۵

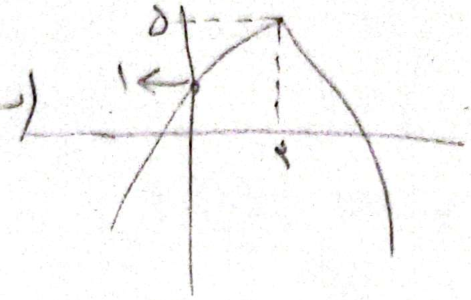
۱) (۲)

الف) $\frac{-b}{2a}=1 \to 2-4+1=-1 \to ext\ min \Big|^{1}_{-1}$ ✓

ب) $\frac{-b}{2a}=\frac{3}{4} \to ext: Max \Big|^{\frac{3}{4}}_{\frac{-41}{8}}$ ✓

۲) (۲)

الف)  ✓

ب)  ✓

۳) (۲)

$\begin{cases}\alpha\beta=-2\\ \alpha+\beta=1\end{cases} \Rightarrow \alpha=-1 , \beta=2 \to -4-2+9+k=0 \to k=-3$ ✓

۴) (۲)

$(\sqrt{\alpha}-\sqrt{\beta})^2 \Rightarrow \alpha+\beta-2\sqrt{\alpha\beta}=1 \to 3m-2\sqrt{m}-1=0 \to \begin{cases}t=-\frac{1}{3}\\ t=1\end{cases} \Rightarrow m=1$

$\frac{c}{a}=\frac{-m}{2}=\frac{-1}{2}$ ✓

۵) (۱,۲۵)

$a+b+c=0 \Rightarrow \begin{cases}x=1\\ x=\frac{m}{2}\end{cases}$ $|\alpha-\beta|=|\frac{m}{2}-1|$

$S=|\frac{m}{2}-1|\times|m|\times\frac{1}{2}=\frac{3}{4} \to |m^2-2|m||=3 \to \begin{cases}|m|^2-2|m|-3=0 \checkmark\\ |m|^2-2|m|+3=0 \to \text{بدون ریشه}\end{cases}$

$\Rightarrow m=\pm 3 \to \frac{-b}{2a}=\frac{m}{4}=\pm\frac{3}{4}$

۶) (۲)

① $a>0$ ② $\frac{-\Delta}{4a}=\frac{7}{8} \Rightarrow \frac{9-4a^2}{4a}=\frac{7}{8} \to 8a^2-7a-18=0$

$\Rightarrow a=\frac{-9}{8}, 2$ ①② $\to a=2 \Rightarrow$ یک مقدار ✓

۷) (۲)

$a+b+c=0 \to \begin{cases}x=1\\ x=a\end{cases} \Rightarrow a=3 \Rightarrow x_1=3$

$|\alpha_2-\beta_2|=\frac{\sqrt{\Delta}}{|a|}=2 \Rightarrow \sqrt{100-4b}=2 \Rightarrow b=24 \Rightarrow x^2-10x+24=0 \to x_2=24$

$x_2-x_1=21$ ✓

۵-

$|m(m-2)|=3 \to m(m-2)=3 \to \begin{cases}m=-1\\ m=3\end{cases}$

$m=-1 \to y=x^2+x+1 \to \frac{-b}{2a}=\frac{-1}{2}$

$m=3 \to y=x^2-3x+1 \to \frac{-b}{2a}=\frac{3}{2}$

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۸) ext‌ها → $y_1 = y_2$, $x_1 \neq x_2$ ⇒ $ext_1 \left| \begin{matrix} \frac{1}{2} \\ \frac{-b}{4a} \end{matrix} \right. \to = -1 \Rightarrow \frac{-a}{4} + \frac{a}{2} + 2 = -1 \to a = -12$ ✓

$ext_2 \left| \begin{matrix} \frac{1}{4} \\ \to = \frac{-1}{4} \end{matrix} \right. \Rightarrow \frac{b}{8} - \frac{b}{4} - 1 = \frac{-1}{4} \to b = -6$ ✓ → $b - a = 6$ ✓ (۲)

۹) $\alpha\beta = \frac{b}{25\alpha} \Rightarrow 25\alpha^2 = 1 \to \alpha = \pm\frac{1}{5}$

$\Rightarrow \alpha + \beta = \begin{cases} \alpha = \frac{1}{5} \to \beta = -1 \times \\ \alpha = -\frac{1}{5} \to \beta = 1 \checkmark \to \beta > \alpha \end{cases} \longrightarrow y = -5x^2 + 4x + 1 = 0 \to \begin{cases} x = 1 \\ x = \frac{-1}{5} \end{cases}$ (۲)

$\to \frac{1 - \frac{1}{5}}{2} = \frac{2}{5} \longrightarrow x \to \oplus,\ y \to \oplus \Rightarrow$ ناحیه اول ✓

۱۰) $a + b = a^2 + b^2 - 12 \Rightarrow a + b = \underbrace{(a+b)}_{t}{}^2 - 2ab - 12 \to t^2 - 2(ab) - 12 \xrightarrow{ab = a+b-1}$ (۲)

$t^2 - 2(t-1) - 12 = t^2 - 3t - 10 = 0 \Rightarrow \begin{cases} t = -2 \\ t = 5 \checkmark \end{cases}$ → طبیعی $\to t = a + b = 5$ ✓