نام و نام خانوادگی امیرحسین ... پاسخنامه تشریحی تکلیف شماره ۲۴ ... کلاس دهم ... A ...

۲۵

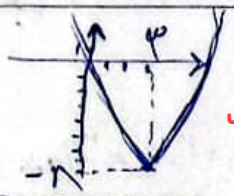
۱ (۲)

الف) $y=2x^2-6x+10 \rightarrow ext \left|\begin{matrix}\frac{-b}{2a}\\ \frac{-\Delta}{4a}\end{matrix}\right. \Rightarrow \left|\begin{matrix}\frac{6}{4}=1\\ 2-6+10=-1\end{matrix}\right. \Rightarrow$ min دارد و -1 ✓

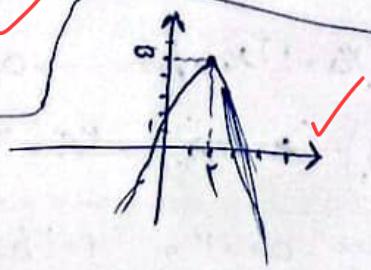
ب) $-2x^2+4x-3=0 \rightarrow ext \left|\begin{matrix}\frac{-b}{2a}\\ \frac{-\Delta}{4a}\end{matrix}\right. \Rightarrow \left|\begin{matrix}\frac{-4}{-4}=\frac{4}{4}\\ -\frac{(b^2-4ac)}{-8}=\frac{-31}{-8}\end{matrix}\right. \Rightarrow \left|\begin{matrix}1\\ \frac{-31}{8}\end{matrix}\right.$ max دارد ✓

۲ (۲)

الف) $x^2-6x+1=0 \rightarrow \left|\begin{matrix}\frac{-b}{2a}\\ \frac{-\Delta}{4a}\end{matrix}\right. \rightarrow \left|\begin{matrix}3\\ -8\end{matrix}\right.$



✓



✓

ب) $-x^2+4x+12>0 \Rightarrow \left|\begin{matrix}\frac{-b}{2a} \rightarrow \frac{-4}{-2}=2\\ \frac{-\Delta}{4a} \rightarrow -4+8+12=16\end{matrix}\right. \rightarrow \left|\begin{matrix}2\\ a\end{matrix}\right.$

۳ (۲)

$4x^3+kx^2-9x-2=0$ ریشه‌ها $\rightarrow \alpha+\beta=1$ و $\alpha\beta=-2$ ریشه‌ها

$x^2-Sx+P=0 \rightarrow x^2-x-2=0$ بفشار بر هاول ←

$(x^2-x-2)(ax+c)=4x^3+kx^2-9x-2 \xrightarrow{4x^3:x^2} 4x+c$

$-2c=-2 \rightarrow c=1$

جواب

$(x^2-x-2)(4x+1)=4x^3+x^2-4x^2-x-8x-2=4x^3+kx^2-9x-2 \rightarrow k=-3$

۴ (۲)

$x^2-2\sqrt{m}x+m=0 \rightarrow \sqrt{\alpha}-\sqrt{\beta}=1 \Rightarrow \alpha+\beta-2\sqrt{\alpha\beta}=1 \Rightarrow 2m-2\sqrt{m}=1$

$2m-2\sqrt{m}-1=0 \Rightarrow \sqrt{m}=t \rightarrow 2t^2-2t-1=0 \rightarrow m=1 \quad m=\frac{-1}{2}$

$\rightarrow 2x^2+x-1=0 \rightarrow P=\frac{c}{a}=\frac{-m}{2}=\frac{-1}{2}$ ✓ جواب

۵ (۲)

$y=2x^2-(m+2)x+m \Longrightarrow$ مجموع ضرایب صفر $\rightarrow \begin{cases}x_1=1\\ x_2=\frac{m}{2}\end{cases}$

$x=0 \rightarrow y=m$ مساحت $S=\left|\frac{1}{2}m\left(\frac{m}{2}-1\right)\right|=\frac{2}{4} \rightarrow \left|m\left(\frac{m}{2}-1\right)\right|=2$

$m(m-2)=8 \begin{cases}\rightarrow m=4\\ \rightarrow m=-2\end{cases}$

$y=x^2-mx+1 \rightarrow \begin{cases}\frac{m}{2}=\frac{-1}{2}\\ \frac{m}{2}=\frac{3}{2}\end{cases}$ ✓ جواب

۶ (۲)

$y = ax^2 + 2x + a \longrightarrow y = \frac{-\Delta}{4a} = \frac{1}{8} \rightarrow \frac{-(9-4a^2)}{4a} = \frac{1}{8} \rightarrow -72 + 32a^2 = 18a$

$\rightarrow 32a^2 - 18a - 72 = 0 \rightarrow (a-4)(a+\frac{9}{16}) = 0 \longrightarrow a_1 = \frac{64}{32} = 2$ ✓

$a_2 = \frac{-36}{32}$ ✗ چون مثبت

فقط یک جواب دارد ✓

۷ (۲)

$x^2 - (a+1)x + a = 0 \longrightarrow$ مجموع ضرایب صفر $\rightarrow \begin{cases} x_1 = 1 \\ x_2 = \frac{c}{a} = a \end{cases}$ دو ریشه فرد متوالی $\rightarrow a = 3$

$x^2 - (2a+1)x + b = 0 \longrightarrow a = 3 \rightarrow x^2 - 10x + b = 0$ دو ریشه زوج متوالی $\rightarrow \frac{-b}{a} = 10 \rightarrow \begin{cases} y_1 = 6 \\ y_2 = 4 \end{cases}$

$(y_1 + 2y_2) - (x_1 + 2x_2) = 24 - 3 = 21$ ✓ جواب

۸ (۲)

$y = -ax^2 + ax + 2$ ، $y = 2bx^2 - bx - 1$

$S = \frac{-a}{-2a} = \frac{1}{2} \rightarrow -a(\frac{1}{2})^2 + a(\frac{1}{2}) + 2 = 2b(\frac{1}{2})^2 - b(\frac{1}{2}) - 1 \rightarrow$

$\frac{1}{4}a = 3 \rightarrow a = 12$ ✓

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

$b - a = -4 - (-12) \overset{+12}{=} 8$ ✓ جواب

۹ (۲)

$y = 2ax^2 + 4x + \beta$ ، $\beta > a$

$\alpha + \beta = \frac{-4}{2a}$ $\quad \alpha\beta = \frac{\beta}{2a} \rightarrow 2a\alpha^2\beta = \beta \rightarrow 2a\alpha^2 = 1 \rightarrow \alpha^2 = \frac{1}{2a} \rightarrow \alpha = \pm\frac{1}{a}$

$\alpha = \frac{1}{a} \Rightarrow \beta = -1$

$\alpha = \frac{-1}{a} \rightarrow \beta = +1$ $\Rightarrow \beta > a \rightarrow \frac{-b}{2a} = -\frac{4}{10} = \frac{2}{5}$ ✓ جواب

$y = -a \times \frac{4}{2a} + \frac{8}{2a} + 1 = \frac{9}{a} \rightarrow$ با صدا ول ✓

۱۰ (۲)

$x^2 - (a^2 + b^2 - 12)x + a + b - 1 = 0 \longrightarrow S = \frac{-b}{a} = \frac{a^2+b^2-12}{1}$

$\rightarrow P = \frac{c}{a} = a + b - 1$

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

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

$\rightarrow S^2 - 2(S-1) - 12 = S$

$S^2 - 3S - 10 = 0 \rightarrow (S+2)(S-5) = 0 \begin{cases} S = -2 \\ S = 5 \end{cases}$

$a + b = 5$ ✓ جواب