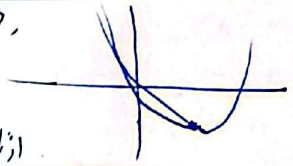
نام و نام خانوادگی ..... پاسخنامه تشریحی تکلیف شماره ۲۵ ... کلاس ... دهم پسر B

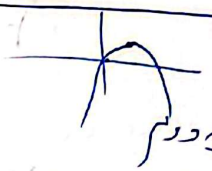
۱

الف) $y = 3x^2 - 2x = x(3x-2) = 0 \rightarrow \begin{cases} x=0 \\ x=\frac{2}{3} \end{cases}$ $\Rightarrow a>0$

از ناحیه سوم نمی گذرد



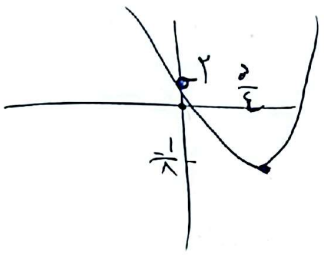
ب) $y = -x^2 + 4x = x(-x+4)$ $x = \begin{cases} 4 \\ 0 \end{cases}$ $a<0 \Rightarrow$



ناحیه دوم

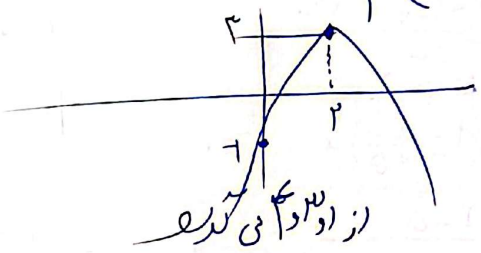
۲

$y = 2x^2 - 5x + 2$ $S = \frac{5}{4} = \frac{10}{8}$



از ۲و۴ نمی گذرد

$y = -x^2 + 4x - 1$ $S = \begin{cases} 2 \\ 3 \end{cases}$



از اول و سوم نمی گذرد

۳

$x^2 - x + 3 = 0$ $S = 1$ $P = -3$ $|\alpha - \beta| = \sqrt{13}$

الف) $\frac{\alpha+\beta}{\alpha-\beta} = \frac{1}{\sqrt{13}}$

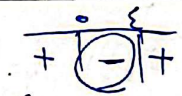
ب) $S^2 - 2P = 1^2 - 2(-3) = 7$

ج) $\alpha^3 + \beta^3 = S^3 - 3SP = 10$

$(\alpha-\beta)(\alpha^2+\beta^2+\alpha\beta) = (\sqrt{13})(7-(-3)) = 4\sqrt{13}$

۴

$x^2 - ax + a \rightarrow \Delta < 0 \rightarrow a^2 - 4a < 0 \rightarrow a(a-4) < 0$



$(0, 4)$

$a \in (0, 4]$

ودرضمن نمی تواند مضاعف منفی باشد طبعا

۵

$2\alpha^2 + \beta^2 - 4\alpha = 7 \rightarrow \alpha^2 + \beta^2 + \alpha^2 - 4\alpha = 7 \rightarrow 14 + \frac{2}{3}\alpha + \frac{1}{3}\alpha = 7 \Rightarrow a = -9$

$2\alpha^2 - 12\alpha - a = 0 \rightarrow \alpha^2 - 4\alpha = \frac{a}{2}$

$3\beta^2 - 12\beta - a = 0$ $3x^2 - 12x + a = 0 \rightarrow 3(x^2 - 4x + 3) = 0$

$\frac{4 \pm \sqrt{4}}{2} \rightarrow \begin{matrix} 3 \\ 1 \end{matrix} \rightarrow \frac{-a}{3} \rightarrow 3$ جواب

۶

$S_6 = \frac{-2a+12+2a}{2} = 0 \rightarrow y_S = 2$ — بردار Δ, S, a, β

$\begin{cases} 7-2a>0 \\ 2a+12>0 \\ a-2>0 \end{cases} \rightarrow 2<a<\frac{7}{2} \rightarrow a=3$

$a=3 \rightarrow \begin{matrix} A(4,1) \\ B(1,0) \end{matrix} \rightarrow y-2 = a(x-5)^2 \xrightarrow{(1,0)} a = -\frac{1}{8}$

۷

$ax^2-ax-b=0 \rightarrow S = -\frac{a}{a} = 1 \rightarrow \alpha+\beta=1 \rightarrow 1-\beta=\alpha$

$4\beta^2 + 20(1-\beta)^2 - 20\beta = 12 \rightarrow 40\beta^2-40\beta+8=0$

$\beta = \frac{20 \pm \sqrt{400}}{40}$ $\begin{cases} \alpha-\beta = 1-2\beta \\ 1-2\left(\frac{10\pm\sqrt{80}}{20}\right) \end{cases}$

$1-\left(1\pm\frac{2}{\sqrt{5}}\right) = \pm\frac{2}{\sqrt{5}} \quad |\alpha-\beta| = \frac{2}{\sqrt{5}}$

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$x_S \Rightarrow \frac{1-a}{2} = -2 \rightarrow f(x) = a(x+2)^2 - \frac{1}{2}$ — فرض کنید

$f(0) = \frac{3}{2} \rightarrow 4a - \frac{1}{2} = \frac{3}{2} \quad a = \frac{1}{2}$

$f(1) \rightarrow \beta \quad \frac{1}{2}(3)^2 - \frac{1}{2} \rightarrow \frac{9}{2} - \frac{1}{2} = 4 \quad \beta = 4$

۹

$3\alpha^2+2\beta^2 = \frac{5}{2}(\alpha^2+\beta^2) + \frac{1}{2}(\alpha^2-\beta^2) = 12\sqrt{2}+18$

$\frac{5}{2}(S^2-2P) + \frac{1}{2}\left(\frac{\sqrt{\Delta}}{|a|}\right)(S) = 12\sqrt{2}+18$

$\frac{5}{2}(36-2a) + \frac{1}{2}(-4)(-\sqrt{36-4a}) = 12\sqrt{2}+18$

$90-5a+2\sqrt{36-4a} = 12\sqrt{2}+18 \quad 90-5a=18$

$a=-1$

۱۰

$\frac{1}{\sqrt{\alpha}} + \frac{1}{\sqrt{\beta}} = \frac{\sqrt{\alpha}+\sqrt{\beta}}{\sqrt{\alpha}\sqrt{\beta}} = 0 \xrightarrow{()^2} \frac{\alpha+\beta+2\sqrt{\alpha\beta}}{\alpha\beta} = 25$

$\frac{\frac{m+14}{36} + 2\sqrt{\frac{1}{36}}}{\frac{1}{36}} = 25 \rightarrow \frac{m+14}{36} + \frac{12}{36} = \frac{25}{36} \quad m=-1$

$-x^2+2x+2=0 \quad P = \frac{c}{a} = -2 \quad -2$