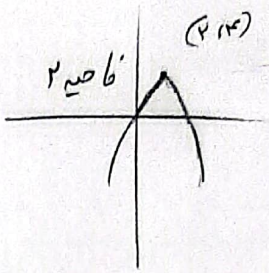
نام و نام خانوادگی ..... پاسخنامه تشریحی تکلیف شماره ..... کلاس .....

۱

از ناحیه ۲

$y = -x^2 + 4x$

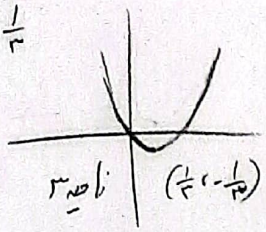
$ext \left| \begin{matrix} 2 \\ 4 \end{matrix} \right.$



از ناحیه ۳

$y = 3x^2 - 2x$

$ext \left| \begin{matrix} \frac{1}{3} \\ -\frac{1}{3} \end{matrix} \right.$

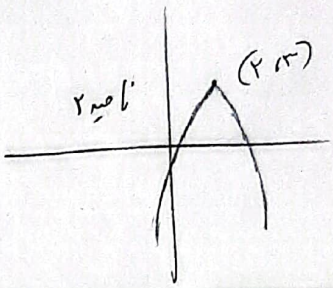


۲

از ناحیه ۴،۳،۱

$y = -x^2 + 4x - 1$

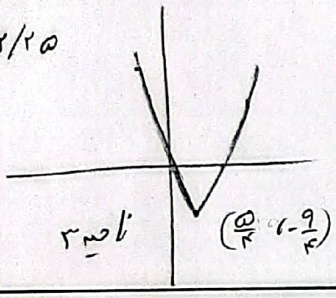
$ext \left| \begin{matrix} 2 \\ 3 \end{matrix} \right.$



از ناحیه ۴،۲،۱

$y = 2x^2 - 5x + 2$

$ext \left| \begin{matrix} 1/25 \\ -2/25 \end{matrix} \right.$



۳

$x^2 - x - 3 = 0$

$\alpha + \beta = 1$

$\alpha\beta = -3$

$|\alpha - \beta| = \frac{\sqrt{13}}{1}$

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

ب) $\alpha^2 + \beta^2 = (\alpha+\beta)^2 - 2\beta\alpha \Rightarrow 1 + 6 = 7$

ج) $\alpha^3 + \beta^3 = (\alpha+\beta)^3 - 3\alpha\beta(\alpha+\beta) \Rightarrow 1 - 3(-3)(1) = 10$

د) $\alpha^3 - \beta^3 = (\alpha-\beta)(\underbrace{\alpha^2+\beta^2}_{(\alpha+\beta)^2-2\alpha\beta} + \alpha\beta) \Rightarrow (\sqrt{13})(1+3) = 4\sqrt{13}$

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$y = (x-2)(x^2 - ax + a)$

↓

۲ نقطه تقاطع دارند

$x^2 - ax + a = (x-2)^2 = x^2 - 4x + 4 \Rightarrow a = 4$

ریشه نداشتن با $x^2 - ax + a$

$\rightarrow \Delta < 0 \Rightarrow a^2 - 4a < 0 \Rightarrow a(a-4) < 0$

	0		4	
	+	−	+	

$\Rightarrow (0, 4)$

$[0, 4]$

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$3x^2 - 12x - 2 = 0$

$\Rightarrow x^2 - 4x = \frac{2}{3}$

$\Rightarrow \alpha^2 - 4\alpha = \frac{2}{3}$

$2\alpha^2 + \beta^2 - 4\alpha = 7$

$\alpha^2 - 4\alpha + \alpha^2 + \beta^2 - 7 = 0 \Rightarrow \frac{2}{3} + 16 - \frac{12}{3} - 7 = 0$

$\Rightarrow 9 - \frac{2a}{3} = 0 \Rightarrow 27 - 2a = 0 \Rightarrow a = 27$

$\alpha^2 + \beta^2 = S^2 - 2P \Rightarrow 16 - \frac{4}{3}$

$S = 4$

$P = \frac{2}{3}$

$3x^2 - 12x - 27 = 0$

ریشه بزرگتر $\rightarrow \frac{12 + \sqrt{144 + 12 \times 27}}{6} = 2 + \sqrt{13}$

$\frac{27}{2 + \sqrt{13}} = -6 + 3\sqrt{13}$

۶

$7-2\alpha>0 \Rightarrow 2\alpha<7 \Rightarrow \alpha<\frac{7}{2}$
$\alpha-2>0 \Rightarrow \alpha>2$
$\Rightarrow \alpha=3$

$B(1,1)$
$A(9,1)$
$\Rightarrow x=\frac{1+9}{2}=5=h$, ext $\Big|_{3}^{5}$
$\Rightarrow y=3$

$y=a(x-h)^2+k$
$\Rightarrow y=a(x-5)^2+3$
$1=16a+3 \Rightarrow a=-\frac{1}{8}$
$|y|=\left|-\frac{1}{8}(5)^2+3\right| \Rightarrow |y|=\left|\frac{1}{8}\right|=\frac{1}{8}$

۷

$2x^2-2x-b=0 \rightarrow \alpha+\beta=1$, $\alpha\beta=\frac{-b}{2}$
$\Rightarrow 2\beta^2-2\beta=b$
$\Rightarrow \beta^2-\beta=\frac{b}{2}$

$\alpha^2+\beta^2=1+\frac{2b}{2}$

$3\beta^2+2\alpha^2-2\beta=2(\beta^2-\beta)+2(\alpha^2+\beta^2)=\frac{2b}{2}+2+\frac{4b}{2}=12 \Rightarrow \frac{6b}{2}=-12 \Rightarrow 2b=-2$

$\Rightarrow -2bx^2+2bx-b=0 \Rightarrow -b(2x^2-2x+1)=0$, $\alpha-\beta=\frac{\sqrt{\Delta}}{|a|}=\frac{\sqrt{4-8}}{2}=\frac{2\sqrt{2}}{2}$

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$x=\frac{1-3}{2}=-1$
$y=-\frac{1}{2}$

$y=a(x-h)^2+k$
$y=a(x+1)^2-\frac{1}{2}$
$\frac{3}{2}=a(2)^2-\frac{1}{2} \Rightarrow a=\frac{1}{2}$
$\beta=\frac{1}{2}(3)^2-\frac{1}{2}=4$

۹

$x^2+4x+2=0$
$\Rightarrow x^2=-4x-2$
$\alpha^2=-4\alpha-2$

$\alpha+\beta=-4 \Rightarrow \beta=-(\alpha+4)$
$\alpha\beta=2$

$3\alpha^2+2\beta^2=\alpha^2+2(\alpha^2+\beta^2)=17-4\alpha-8\alpha-2=15+11\sqrt{2}$
$\Rightarrow 11+11\sqrt{2}=-5\alpha-8\alpha=-5\alpha\beta-8\alpha=5\alpha^2+11\alpha$
$\Rightarrow 5\alpha^2+11\alpha-11-11\sqrt{2}=0 \Rightarrow \alpha=-3-2\sqrt{2}$
$\Rightarrow \beta=-1+2\sqrt{2}$

$2=\alpha\beta=(-3-2\sqrt{2})(-1+2\sqrt{2})=1$

۱۰

$\frac{1}{\sqrt{\alpha}}+\frac{1}{\sqrt{\beta}}=\frac{\sqrt{\alpha}+\sqrt{\beta}}{\sqrt{\alpha\beta}}=5 \Rightarrow \frac{5}{2}=\sqrt{\alpha}+\sqrt{\beta} \Rightarrow \frac{25}{4}=\alpha+\beta+2\sqrt{\alpha\beta} \Rightarrow \alpha+\beta=\frac{17}{4}$

$4x^2-(m+13)x+1=0 \rightarrow \alpha\beta=\frac{1}{4}$, $\alpha+\beta=\frac{m+13}{4}$, $m+13=17 \Rightarrow m=4$

$-x^2+x+2=0 \Rightarrow \alpha\beta=\frac{2}{-1}=-2$