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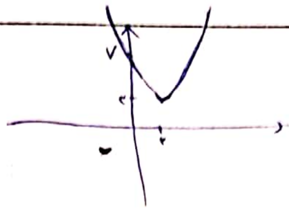
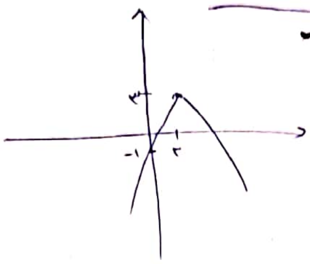
نام و نام خانوادگی ......سیده سادات بصیری...... پاسخنامه تشریحی تکلیف شماره ...۲... کلاس ....یازدهم تجربی....

۱	الف) $y = x^2 - 4x + 7$ $x_{min} = \frac{-b}{2a} = \frac{4}{2} = 2$ $y_{min} = 4 - 8 + 7 = 3$ $y = -x^2 + 4x - 1$ $x_{max} = \frac{-b}{2a} = \frac{-4}{-2} = 2$ $y_{max} = -4 + 8 - 1 = 3$  	۲
۲	$2x^2 + (m+1)x + \frac{1}{2}m + 2 = 0$ الف) $\Delta > 0 \to m^2 + 1 + 2m - 4(\frac{1}{2}m + 2)(2) > 0 \to m^2 - 2m - 15 > 0 \to (m+3)(m-5)$ $\to$ $-3 \quad 5$; $+ \; - \; +$ $\to m > 5$, $m < -3$ ب) $\Delta = 0 \to m^2 - 2m - 15 = 0 \to (m-5)(m+3) = 0 \to m = 5$, $m = -3$ ج) $\Delta < 0 \to m^2 - 2m - 15 < 0 \to$ $-3 \quad 5$; $+ \; - \; +$ $\to -3 < m < 5$ د) $\Delta \geq 0 \to m^2 - 2m - 15 \geq 0 \to$ $-3 \quad 5$; $+ \; - \; +$ $\to m \geq 5$ یا $m \leq -3$	۲
۳	$y = (m-2)x^2 - 2(m+1)x + 10$ الف) $\Delta > 0 \to 4m^2 + 4 + 8m - 4(10)(m-2) > 0 \to 4m^2 - 32m + 84 > 0 \to m^2 - 8m + 21 > 0 \to$ همیشه مثبت ✓ ($\Delta < 0$) $S < 0 \to \frac{-b}{a} = \frac{2(m+1)}{m-2} < 0$ $\;$ $-1 \quad 2$; $+ \; - \; +$ $\to -1 < m < 2$ $P > 0 \to \frac{c}{a} \to \frac{10}{m-2} > 0 \to m$ ... اشتراک ∅ ب) $\Delta > 0$ ✓ $P < 0 \to \frac{c}{a} \to \frac{10}{m-2} < 0 \to m < 2$ $\lvert\alpha_1\rvert > \lvert\alpha_2\rvert \to \alpha_1 + \alpha_2 = S < 0 \to \frac{2(m+1)}{m-2} < 0 \to -1 < m < 2$ ($\frac{-b}{a}$) اشتراک $-1 < m < 2$	۲
۴	$y = (m-2)x^2 - 2(m+1)x + 10$ الف) $\Delta > 0$ ✓, $P < 0 \to \frac{c}{a} \to \frac{10}{m-2} < 0 \to m < 2$ اشتراک $m < 2$ ب) $\frac{-b}{2a} = -2 \to \frac{2(m+1)}{2(m-2)} = -2 \to m + 1 = -2m + 4$ ($2m - 4$) $3m = 3 \to m = 1$	۲
۵	$\frac{2x^2}{3} - (2\sin\alpha)x + \frac{3}{2} = 0$ $\Delta \geq 0 \to 4\sin^2\alpha - 4(\frac{2}{3})(\frac{3}{2}) \geq 0 \to 4\sin^2\alpha \geq 4 \to \sin^2\alpha \geq 1 \to \sin\alpha = 1$, $\sin\alpha = -1$ ① $\to \frac{2x^2}{3} - 2x + \frac{3}{2} = 0$ $\xrightarrow{\times 3/2}$ $x^2 - 3x + 1 = 0 \to (x-1)^2 = 0$ $\to x = \frac{1}{\frac{2}{3}} = \frac{3}{2}$ ② $\to \frac{2}{3}x^2 + 2x + \frac{3}{2} = 0$ $\xrightarrow{\times 3/2}$ $x^2 + 2x + 1 = 0 \to (x+1)^2 = 0$ $x = \frac{-3}{2}$ ($\frac{-1}{\frac{2}{3}}$) غلط است و بود ریشه منفی شده	۲

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$y = \frac{(3x^2-4x-1)(2x^2-3x-5)}{1-x^2} = \frac{(x-1)(3x+1)(x+1)(2x-5)}{(1-x)(1+x)} = (-1)(3x+1)(2x-5)$

$= (-1)(6x^2-15x+2x-5) = -6x^2+13x+5$

$y_{max} = \frac{-\Delta}{4a} = \frac{-(13^2-4\times5\times(-6))}{-24} = \frac{-289}{-24} = \frac{289}{24}$

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$mx^2-(m+2)x-2=0 \quad \alpha+\beta = \frac{m+2}{m} \quad \alpha\beta = \frac{-2}{m} \to \frac{-2}{4} = \frac{-1}{2}$

$3(\alpha+\beta) = 5\alpha\beta+7$

$\frac{3m+6}{m} = \frac{-10}{m}+7 \to \frac{3m+16}{m} = 7 \to 7m = 3m+16$

$4m = 16 \to m = 4$

$\alpha+\beta = \frac{6}{4} = \frac{3}{2}$

$\alpha^2+\beta^2 = (\alpha+\beta)^2-(2\alpha\beta) = \frac{9}{4}-2\left(\frac{-1}{2}\right) = \frac{9}{4}+1 = \frac{13}{4}$

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$x^2-5x+2=0 \quad \alpha\beta = 2 \to \beta = \frac{2}{\alpha},\ \beta^2 = \frac{4}{\alpha^2} \quad \alpha+\beta = 5$

$\frac{2\alpha+\beta^5}{5\beta^2} = \frac{2}{5}\cdot\frac{\alpha}{\beta^2}+\frac{1}{5}\beta^3 = \frac{2}{5}\cdot\frac{\alpha}{\frac{4}{\alpha^2}}+\frac{1}{5}\beta^3 = \frac{1}{5}\alpha^3+\frac{1}{5}\beta^3 = \frac{1}{5}(\alpha^3+\beta^3)$

$\alpha^3+\beta^3 = (\alpha+\beta)^3-3\alpha\beta(\alpha+\beta)$

$= \frac{1}{5}(125-30) = 19$

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$y_1 = ax^2+bx+c \Rightarrow ax^2+bx+4$

$y_2 = 2x+10$

$\to ax^2+bx+4 = 2x+10 \to ax^2+(b-2)x-6=0$

$x=2$: $4a+(b-2)2-6=0 \to 4a+2b-4-6=0 \to 2a+b=5$

$x=3$: $9a+(b-2)3-6=0 \to 9a+3b-6-6=0 \to 3a+b=4$

عرض از مبدا ... → $c=4$

$\begin{cases} 2a+b=5 \\ 3a+b=4 \end{cases} \quad -a=1 \to a=-1,\ b=7$

$y_1 = -x^2+7x+4$

طول رأس → $\frac{-b}{2a} = \frac{-7}{-2} = \frac{7}{2}$

$\begin{cases} 4a+2b=10 \\ 9a-3b=0 \end{cases} \to a=1,\ b=3$

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

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$y_1 = 2x^2+(m+1)x+m+6$

$y_2 = x$

$2x^2+(m+1)x+m+6 = x$

$2x^2+mx+m+6=0 \xrightarrow{\text{نقطه برخورد (مماس)}} \Delta = 0 \to m^2-4(m+6)(2) = 0$

$m^2-8m-48=0$

$(m-12)(m+4)=0$

$m=12$ ✗ $\qquad m=-4$ ✓

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علیرضا ناصریان