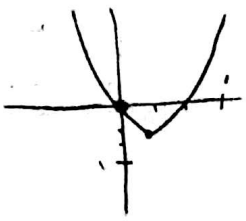
نام و نام خانوادگی ..... پاسخنامه تشریحی تکلیف شماره ۲ کلاس دهم B

۱

الف) $y = 2x^2 - 2x$

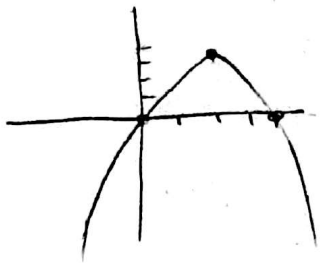
x	0	$\frac{1}{2}$	1
y	0	$-\frac{1}{2}$	0



نمودار سهمی

ب) $y = -x^2 + 4x$

x	0	2	4
y	0	4	0

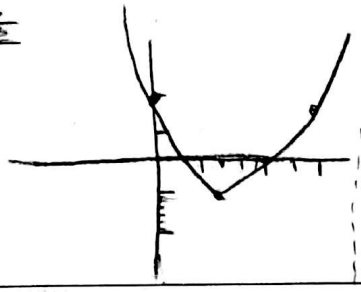


نمودار دوم

۲

الف) $y = 2x^2 - 5x + 2$

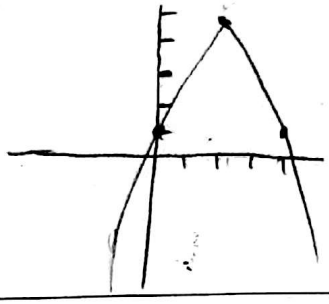
x	0	$\frac{5}{4}$	$\frac{10}{4}$
y	2	$-\frac{9}{8}$	2



اولین نمودار سهمی

ب) $y = -x^2 + 4x + 1$

x	0	2	4
y	1	5	1



دومین نمودار

۳

الف) $\frac{a+b}{a-b} = \frac{-b}{ax} \times \frac{|ax|}{\sqrt{a}} = \frac{1}{\sqrt{12}}$

$x^2 - x - 2 = 0$

ب) $a^2+b^2 = s^2 - 2p = 1 + 4 = 5$

ج) $a^3+b^3 = s^3 - 3sp = -1 - (3 \times -2 \times -1) = -10$

د) $a^3-b^3 = (a-b)(a^2+ab+b^2) = \sqrt{12}\,(5 + (-2)) = 4\sqrt{12}$

۴

$y = (x-2)(x^2 - ax + a)$ — دقیقاً در یک نقطه قطع می‌کند یعنی $\frac{1}{2}$ ریشه دارد و آن ریشه $x = 2$ است

$\Rightarrow a^2 - 4a < 0 \Rightarrow$ (جدول تعیین علامت: 0، 4؛ $+$، $-$، $+$) $\Rightarrow a \in (0, 4)$

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$3x^2 - 12x - a = 0 \Rightarrow \alpha + \beta = 4 \Rightarrow \beta = 4 - \alpha$

$2\alpha^2 + \beta^2 - 4\alpha = 7 \Rightarrow 2\alpha^2 + (4-\alpha)^2 - 4\alpha - 7 = 0 \Rightarrow 3\alpha^2 - 12\alpha + 9 = 0$

$\alpha = 1 \Rightarrow \beta = 3$ — $\alpha = 3 \Rightarrow \beta = 1$

$\Rightarrow$ ریشه‌ها 3 و 1

$1: 3 - 12 - a = 0 \Rightarrow a = -9$

$3: 27 - 36 - a = 0 \Rightarrow a = -9$

$\Rightarrow \frac{-9}{3} = -3$ ■

$(\alpha x+\beta, x-2)$
$(7-2\alpha, x-2)$

$\frac{2\alpha+\beta+7-2\alpha}{2} = 0 = x_s \Rightarrow \frac{-b}{2a} = 0 \Rightarrow b = -10a$, $x_s = b$ ۶

$\Rightarrow 0 = -10a \Rightarrow a = -\frac{1}{2} \Rightarrow -\frac{1}{2}x^2 + 0x + c = y$

$\Rightarrow (2, -\frac{9}{2})$: $-2 + 10 + c = \frac{-9}{2} \Rightarrow c = \frac{-21}{2}$

$2x^2 - ax - b = 0 \Rightarrow \alpha + \beta = 1 \Rightarrow \alpha = 1 - \beta$

$4\beta^2 + 20\alpha^2 - 20\beta = 17 \Rightarrow 4\beta^2 + 20(1-\beta)^2 - 20\beta - 17 = 0 \Rightarrow 20\beta^2 - 20\beta + 1 = 0$ ۷

$\Rightarrow \beta = \frac{5 + 2\sqrt{5}}{10}$, $\beta = \frac{5 - 2\sqrt{5}}{10}$ $\Rightarrow$ اختلاف $= \frac{2\sqrt{5}}{5}$

$(1, \beta)$, $(-5, \beta)$ $\Rightarrow \frac{1 - (-5)}{2} = 3 \Rightarrow$ $\Rightarrow$ ex $\left|\begin{matrix} \times 2 \\ -\frac{1}{2} \end{matrix}\right.$ ۸

$\Rightarrow \frac{-b}{2a} = -2 \Rightarrow b = 4a$ $\Rightarrow ax^2 + 4ax + \frac{3}{2} = y \Rightarrow \Delta = 16a^2 - 4a$

$\Rightarrow \frac{4a - 16a^2}{4a} = -\frac{1}{2} \Rightarrow a = \frac{1}{2}$ $\Rightarrow \frac{1}{2}x^2 + 2x + \frac{3}{2} = y$

$\Rightarrow$ از $\frac{1}{2} + \frac{2}{1} + \frac{3}{2} = 3 = \beta$

$x^2 + 4x + a = 0 \Rightarrow \alpha = -2 - \sqrt{9-a}$

$2\alpha^2 + 2\beta^2 = 12\sqrt{2} + 18 \Rightarrow \alpha^2 + 2(\alpha^2 + \beta^2) = 12\sqrt{2} + 18 \Rightarrow (-2 - \sqrt{9-a})^2 + 2(4 - 2a) = 12\sqrt{2} + 18$ ۹

$\Rightarrow (2 + \sqrt{9-a})^2 + 2(8 - 2a) = 12\sqrt{2} + 18 \Rightarrow 18 - a + 4\sqrt{9-a} + 16 - 4a = 12\sqrt{2} + 18$

$\Rightarrow 12\sqrt{2} - a = 4\sqrt{9-a} - 5a \Rightarrow a = 1$

$\frac{1}{\sqrt{\alpha}} + \frac{1}{\sqrt{\beta}} = 0$, $\alpha\beta = \frac{1}{64} \Rightarrow \frac{\sqrt{\alpha} + \sqrt{\beta}}{\sqrt{\alpha\beta}} = 0 \Rightarrow \sqrt{\alpha} + \sqrt{\beta} = \frac{0}{4}$

$\Rightarrow \alpha + \beta + 2\sqrt{\alpha\beta} = \frac{20}{64} \Rightarrow \alpha + \beta = \frac{12}{64} \Rightarrow \frac{m+14}{64} = \frac{12}{64}$ ۱۰

$\Rightarrow m + 14 = 12 \Rightarrow m = -1 \Rightarrow mx^2 + 6x + 2 = 0 = -x^2 + 6x + 2 = 0$

$= P = \frac{c}{a} = -2$