۱۸، ۲۵

نام و نام خانوادگی ..... پاسخنامه تشریحی تکلیف شماره ۲ کلاس ..... هم دختر هم پسر

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الف) $y = 2x^2 - 4x + 1$ Min $\left| \begin{array}{l} \frac{-b}{2a} = \frac{4}{4} = 1 \\ -1 \end{array} \right.$

ب) $y = -2x^2 + 3x - 5$ Max $\left| \begin{array}{l} \frac{-b}{2a} = \frac{-3}{-4} = \frac{3}{4} \\ \frac{-\Delta}{4a} = \frac{-(9-40)}{-8} = \frac{-31}{8} \end{array} \right.$

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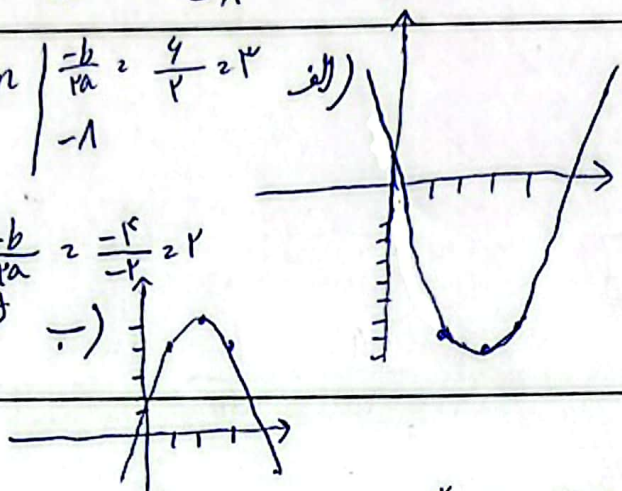
الف) $y = x^2 - 6x + 1$ Min $\left| \begin{array}{l} \frac{-b}{2a} = \frac{6}{2} = 3 \\ -8 \end{array} \right.$

x	2	3	4
y	-7	-8	-7

ب) $y = -x^2 + 4x + 1$ Max $\left| \begin{array}{l} \frac{-b}{2a} = \frac{-4}{-2} = 2 \\ 5 \end{array} \right.$

x	1	2	3
y	4	5	4



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$\alpha + \beta = 1$

$\alpha\beta = -2$

$\left. \begin{array}{l} 4\alpha^3 + k\alpha^2 - 9\alpha - 2 = 0 \\ 4\beta^3 + k\beta^2 - 9\beta - 2 = 0 \end{array} \right\} \Rightarrow 4(\alpha^3 + \beta^3) + k(\alpha^2 + \beta^2) - 9(\alpha + \beta) - 4 = 0$

$4 \times 7 + \quad 5k - 13 = 0$

$5k = -15 \quad k = -3$

$S^2 - 2SP + 9 = 7 \qquad S^2 - 2P + 1 + k = 13$

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

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

$\frac{-b}{a} = 2m \quad -2\sqrt{m}$

$\sqrt{m} = t$

$2t^2 - 2t - 1 = 0 \quad t = 1 \quad t = \frac{-1}{2}$ X $\quad m = 1$

$2x^2 - mx - m = 0$

$x_1 x_2 = \frac{c}{a} = \frac{-m}{2} = \frac{-1}{2}$

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$S_\Delta = \frac{ah}{2} = \frac{(\alpha - \beta)c}{2} = \frac{3}{4}$

$\alpha - \beta = \frac{\sqrt{\Delta}}{|a|} = \frac{\sqrt{(m+2)^2 - 8m}}{2}$

$\frac{\sqrt{(m+2)^2 - 8m} \times m}{4} = \frac{3}{4}$

$m\sqrt{m^2 + 4 + 4m - 8m} = 3$

$m\sqrt{m^2 + 4 - 4m} = 3$

$m(m-2) = 3$

$m^2 - 2m - 3 = 0 \quad (m-3)(m+1) = 0$

$m = 3 \quad m = -1$

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

$\frac{-b}{2a} = \frac{m}{2}$

$= \frac{-1}{2}$

$= \frac{3}{2}$

$y = ax^2 + 2x + a$

Min $\rightarrow$ $a > 0$

$\frac{-\Delta}{4a} = \frac{-(4 - 4a^2)}{4a} = \frac{7}{8}$ $\quad 4a^2 - 4 = \frac{28}{8}a$

$4a^2 - 4 = 3.5a$

$4a^2 - 3.5a - 4 = 0 \Rightarrow a = \frac{3.5 \pm \sqrt{12.25 + 64}}{8} \nearrow 2$ $\quad \searrow \times$

$a = 2$ a بیشترین مقدار ممکن

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$x^2 - (a+1)x + a = 0$ $\quad \alpha - \beta = 2$ $\quad \alpha\beta = a$ $\quad \alpha + \beta = a + 1 \Rightarrow 2\beta = a + 1 - \beta$

$\beta = \frac{a-1}{2}$

$x^2 - (2a+1)x + b = 0$ $\quad x_2 - x_1 = 2$ $\quad x_1 x_2 = b$ $\quad x_1 + x_2 = 2a + 1$ $\quad \alpha = \frac{a+3}{2}$

$\frac{a-1}{2} \times \frac{a+3}{2} = a$ $\quad a^2 + 2a - 3 = 4a$ $\quad a^2 - 2a - 3 = 0$ $\quad (a-3)(a+1) = 0$

$2x_1 = 2a - 1$ $\quad x_1 = \frac{2a-1}{2}$ $\quad x_2 = \frac{2a+3}{2}$ $\quad \frac{(2a-1)(2a+3)}{4} = b$ $\quad a = 3$ $\quad a = -1$

$a = -1 \Rightarrow b = 0$

$a = 3 \Rightarrow b = 12$

$b - a = 11$

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$y = -ax^2 + ax + 2$ $\quad S\left(\frac{-a}{-2a} = \frac{1}{2}, \frac{-(a^2+8a)}{-4a} = \frac{a+8}{4}\right)$

$y = 2bx^2 - bx - 1$ $\quad S\left(\frac{b}{4b} = \frac{1}{4}, \frac{-(b^2+8b)}{8b} = -\frac{b+8}{8}\right)$

$2b \times \frac{1}{4} - \frac{1}{4}b - 1 = \frac{a+8}{4} \Rightarrow a + 8 = -4$

$a = -12$

$-\frac{1}{12}a + \frac{1}{4}a + 2 = \frac{-b+8}{8}$ $\quad \frac{1}{3} \cdot \frac{-3}{-1} + 2 = \frac{-b+8}{8} \Rightarrow -b + 8 = -8$

$b = 16$

$b - a = 16 + 12 = 28$

$\frac{-a}{12} + \frac{a}{4} + 2 = \frac{-b+8}{8}$ $\quad \frac{12}{12} = \frac{-b}{8}$ $\quad +b = -4$ $\quad b - a = 4$

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$y = 2\alpha x^2 + 2x + \beta$ $\quad \beta > \alpha$

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

$\alpha = \frac{1}{2} : \frac{1}{2} + \beta = \frac{-2}{2} \quad \beta = -1$ $\times$

$\alpha = -\frac{1}{2} : -\frac{1}{2} + \beta = \frac{-2}{-2} = 2 \quad \beta = 1$

$y = x^2 - 5x + 6$

$y = x^2 - \frac{5}{2}x = \frac{1}{2}$

Min $\frac{\frac{5}{2}}{2} = \frac{5}{4}$ $\Rightarrow$ ~~۲~~ ۱٫۲۵

$\frac{9}{8}$

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$x^2 - (a^2 + b^2 - 12)x + a + b - 1 = 0$

$a + b = 2 + 1 = 3$

$S = a^2 + b^2 - 12 = a + b$ $\quad P = a + b - 1 = ab$ $\Rightarrow a^2 + b^2 - 12 = ab + 1$

$a^2 + b^2 - ab = 13$

$\Rightarrow (a+b)^2 - 2ab - ab = 13$ $\quad a + b = s$

$s^2 - 3ab - 13 = 0 \Rightarrow s^2 - 3a - 3b + 3 - 13 = 0$

$s^2 - 3s - 10 = 0$

$a + b = s = \frac{3 \pm \sqrt{49}}{2} \nearrow 5$ $\quad \searrow -2$ $\times$

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