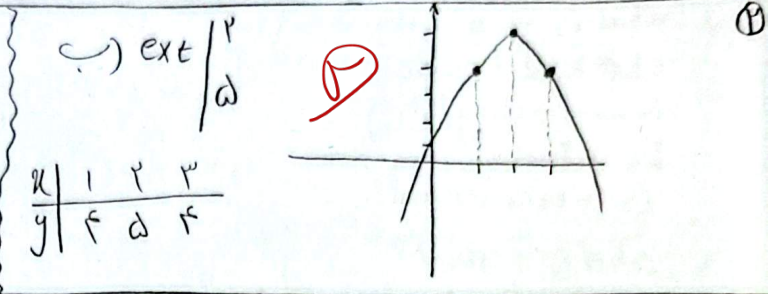
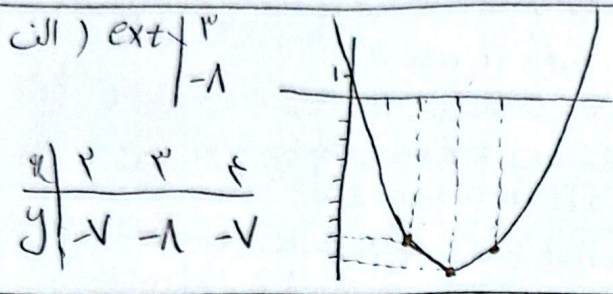


الف) ext $\begin{cases} \frac{x}{f} = 1 \\ -1 \end{cases} \rightarrow \text{ext} \begin{cases} 1 \\ -1 \end{cases} \quad y = f(1)^2 - f(1) + 1 = -1 \quad a > 0 \rightarrow y > 0 \rightarrow \text{Min}$ ①

ب) ext $\begin{cases} \frac{y}{f} = \frac{y}{f} \\ -\frac{y-1}{\lambda} \end{cases} \quad a < 0 \rightarrow -y < 0 \rightarrow \text{max}$ ②

$$-y \left(\frac{y}{f}\right)^2 + 3 \left(\frac{y}{f}\right) - d = \frac{9}{f} - \frac{11}{14} - d = \frac{11}{14} - d = -\frac{31}{14}$$



$\alpha\beta = -y$
 $\alpha + \beta = 1 \rightarrow x^2 - 2x - y = 0 \rightarrow \begin{cases} x = 2 \\ x = -1 \end{cases} \quad f(x)^2 + k(x)^2 - 9(x) - y = 0 \quad k = -12 \quad k = -3$ ③

المساواة $\alpha = \beta$
 $\alpha + \beta = 3m$
 $\alpha\beta = m$

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

$$\rightarrow \sqrt{m} = t \rightarrow m = t^2 \rightarrow 3t^2 - 2t - 1 = 0 \rightarrow t = \frac{2 \pm \sqrt{4+12}}{6} \rightarrow t = 1/t = -\frac{1}{3}$$

$$t = \sqrt{m} \geq 0 \Rightarrow t = 1 \rightarrow m = t^2 = 1$$

$$2x^2 - mx - m = 0 \rightarrow 2x^2 - x - 1 = 0 \rightarrow x_1, x_2 = \frac{1}{2} = \boxed{-\frac{1}{2}}$$
 ④

المساواة $x_1, x_2 \rightarrow \frac{-b \pm \sqrt{\Delta}}{f} \Rightarrow \frac{m+2 \pm \sqrt{m^2-4m+4}}{f}$ ⑤

$$\rightarrow x_1 = 1 \text{ و } x_2 = m/2 \rightarrow \text{مسافات} = (1, 0) \text{ و } (m/2, 0) \text{ و } (0, m)$$

مسافة $\rightarrow |1 - m/2|$
 ارتفاع $\rightarrow |m|$

$$\frac{1}{2} \times |1 - \frac{m}{2}| \times |m| = \frac{3}{2}$$

$$|(1 - \frac{m}{2})m| = \frac{3}{2} \Rightarrow |2m - m^2| = 3$$

$2m - m^2 - 3 = 0 \rightarrow \Delta < 0 \rightarrow$ جواب ندارد
 $m^2 - 2m - 3 = 0 \rightarrow m = 3 / m = -1$
 $(m-3)(m+1)$

$y = x^2 - 3x + 1 / y = x^2 + x + 1 \Rightarrow \frac{-b}{2a} = \boxed{-\frac{1}{2}}$

$$\rightarrow \frac{-b}{2a} = \boxed{\frac{3}{2}}$$
 ⑥

کینه فردی

$$J_{\min} = \frac{-\Delta}{fa} = \frac{fac-b^2}{fa} \rightarrow c=a \Rightarrow \frac{fa^2-9}{fa} = \frac{v}{1} \xrightarrow{\times 1/a} \lambda a^2 - 1\lambda = va$$

$$\lambda a^2 - va - 1\lambda = 0$$

$$a = \frac{v}{a} = \frac{-9}{1} \quad \leftarrow a = \frac{v \pm \sqrt{v^2 + 4\lambda}}{2\lambda} = \frac{v \pm 2d}{2\lambda}$$

$$\text{I) } x^2 - (a+1)x + a = 0 \quad a = \alpha^2 + 2\alpha$$

$$\alpha, \beta \text{ roots} \quad a = 2\alpha + 1$$

$$\alpha\beta = a = \alpha(\alpha+1) = \alpha^2 + 2\alpha$$

$$\alpha^2 + 2\alpha = 2\alpha + 1$$

$$\alpha + \beta = 2\alpha + 1 = a + 1 \rightarrow a = 2\alpha + 1$$

$$\alpha^2 = 1 \quad \alpha = 1 \rightarrow \alpha \neq -1 \text{ چون طبیعی است پس}$$

$$\alpha\beta = a = 2\alpha + 1 = 2 + 1 = 3$$

$$\text{II) } x^2 - (2a+1)x + b = 0$$

$$2f - 3 = 21 \checkmark$$

$$S = 2a + 1 = (3 \times 2) + 1 = 10 \rightarrow \text{جمع دو عدد متوالی زوج ۱۰ و ۶ و ۴ و ۲}$$

$$P = f \times g = 24$$

$$y_1 = -ax^2 + ax + 2 \quad \text{ext} \left| \frac{1}{x} \right.$$

$$\left. \frac{a}{f} + 2 \right.$$

$$2b\left(\frac{1}{f}\right)^2 - b\left(\frac{1}{f}\right) - 1 = \frac{b}{f} - \frac{b}{f} - 1 = -1 = \frac{a}{f} + 2$$

$$\frac{a}{f} = -3 \quad a = -12$$

$$y_2 = 2bx^2 - bx - 1$$

$$\text{ext} \left| \frac{b}{fb} = \frac{1}{f} \right.$$

$$\left. -\frac{b}{f} - 1 \right.$$

$$-a\left(\frac{1}{f}\right)^2 + a\left(\frac{1}{f}\right) + 2 = -\frac{a}{12} + \frac{a}{f} + 2 = \frac{2a+32}{12} = \frac{-b-1}{1}$$

$$2a+32 = -2b-12$$

$$2a+2b = -44$$

$$-24+2b = -44$$

$$2b = -20 \rightarrow b = -10$$

$$b-a = -10 - (-12) = 2 \checkmark$$

$$\text{ext} \left| \frac{f}{2ax} = \frac{2}{2ax} \right.$$

$$\left. \beta - \frac{12}{100x} = \beta - \frac{f}{2ax} \right.$$

$$\alpha < 0 \rightarrow x > 0$$

$$\alpha > 0 \rightarrow x < 0$$

$$\alpha > 0 \rightarrow \text{ناصیه اول}$$

$$\frac{f}{2ax} < 0$$

$$y > 0$$

$$\frac{f}{2ax} > 0$$

$$\beta > 0$$

$$y > 0$$

$$\alpha < 0 \rightarrow \text{ناصیه اول}$$

$$a+b = a^2 + b^2 - 12 \rightarrow a+b = (a+b)^2 - 2ab - 12$$

$$ab = a+b-1$$

$$a+b = (a+b)^2 - 2(a+b-1) - 12 = (a+b)^2 - 2(a+b) - 10 = (a+b)^2 - 2(a+b) - 10 = 0$$

$$a^2 + b^2 = (a+b)^2 - 2ab$$

$$a+b = s \rightarrow s^2 - 2s - 10 = 0 \rightarrow (s-5)(s+2) = 0 \rightarrow s = 5 / s = -2$$

کتاب درسی

$$a, b \text{ طبیعی} \Rightarrow s = 5 \rightarrow a+b = 5 \checkmark$$