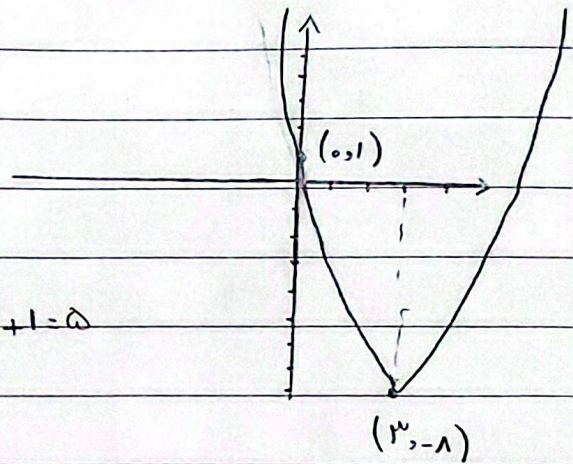


سربرایستی لاسی (دهم سیر) تالیف شادوی ۲۴

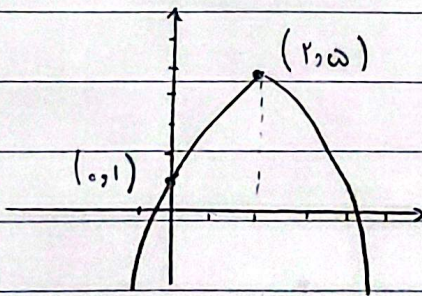
الف) $y = 2x^2 - 4x + 1 \rightarrow \min_{a > 0} \text{ ext} \left| \begin{array}{l} \frac{-b}{2a} = \frac{f}{f} = 1 \\ \rightarrow 2 - 4 + 1 = -1 \end{array} \right. \quad (1)$

ب) $y = -2x^2 + 4x - 5 \rightarrow \max_{a < 0} \text{ ext} \left| \begin{array}{l} \frac{-b}{2a} = \frac{f}{f} \\ \rightarrow (-2) \times \frac{4}{-4} + 4 \times \frac{4}{-4} - 5 = \frac{-21}{1} \end{array} \right.$

الف) $y = x^2 - 4x + 1 \rightarrow \min_{a > 0} \text{ ext} \left| \begin{array}{l} \frac{-b}{2a} = 2 \\ \rightarrow -1 \end{array} \right. \quad (2)$



ب) $y = -x^2 + 4x + 1 \rightarrow \max_{a < 0} \text{ ext} \left| \begin{array}{l} \frac{-b}{2a} = 2 \\ \rightarrow -4 + 4 + 1 = 1 \end{array} \right.$



(3) تناسلی در معادله درجه سه در جواب دارد یعنی با ریشه حتمی و یک ریشه نامعین دارد:

$\sum 2x^3 + 1x^2 - 9x - 2 = 0 \rightarrow (x - \alpha)(x - \beta)^2 = 0 \rightarrow (x^2 - (\alpha + \beta)x + \alpha\beta)(x - \beta) = 0$

$$\rightarrow (x^2 - k - 1)(x - \beta) = 0 \rightarrow (x - 2)(x + 1)(x - \beta) = 0$$

$$\beta = 2, \alpha = -1$$

یافتیم که $\alpha = -1$ و $\beta = 2$ برای $x = 2$ و $x = -1$ در $x^2 - k - 1 = 0$ صدق می کند.
 نزدیک به $x = 2$ برابر است.

$$\rightarrow x^2 - 9 = k - 1 \rightarrow k = -8$$

$$\sqrt{\alpha} - \sqrt{\beta} = 1 \xrightarrow{\text{جواب}} \alpha + \beta - 2\sqrt{\alpha\beta} = 1 \quad (2)$$

$$\rightarrow \sqrt{m} - 2\sqrt{m} = 1 \xrightarrow{\sqrt{m}=t} t^2 - 2t - 1 = 0 \rightarrow t = 1, -1$$

جواب

$$\sqrt{m} = 1 \rightarrow m = 1$$

$$x^2 - mx - m = 0 \xrightarrow{m=1} x^2 - x - 1 = 0 \rightarrow \alpha \times \beta = \frac{c}{a} = \frac{-1}{1}$$

$$S_{\Delta} = \frac{\text{ارتفاع} \times \text{اشاره}}{2} \rightarrow \frac{|\alpha - \beta| \times |m|}{2} = \frac{3}{2} \rightarrow \frac{\sqrt{m^2 + 4cm} \times |m|}{2} = \frac{3}{2}$$

$$\rightarrow \frac{\sqrt{(m-2)^2}}{2} \times |m| = \frac{3}{2} \rightarrow |m-2| \times |m| = 3$$

$$\rightarrow m^2 - 2|m| - 3 = 0 \xrightarrow{|m|=t} t^2 - 2t - 3 = 0 \rightarrow t = -1, 3$$

$$|m| = 3 \rightarrow m = \pm 3$$

$$y = x^2 - mx + 1 \rightarrow \frac{x_0}{y_0} = \frac{-b}{a} = \frac{\pm 3}{1} = \pm 3$$

$$y = ax^2 + 1x + a \rightarrow \min = y < 0 \quad (4)$$

$$y = \frac{-\Delta}{f_a} = \frac{f_a^2 - 9}{f_a} = \frac{V}{\frac{1}{f}}$$

$$\rightarrow 10a^2 - Va - 11 = 0 \rightarrow a = \frac{V \pm \sqrt{4Va}}{14} = 2, \frac{-9}{1}$$

a كبرت Δ بالزيادة

$$x^2 - (a+1)x + a = 0 \rightarrow |a - \beta| = \frac{\sqrt{\Delta}}{|a|} = \frac{\sqrt{a^2 + 1 - 2a - 1}}{1} = 2 \quad (5)$$

$$\rightarrow |a - 1| = 2 \rightarrow a = -1, 3$$

تغير a بالزيادة

$$x^2 - (10+1)x + b = 0 \xrightarrow{a=3} x^2 - 10x + b = 0 \rightarrow |a - \beta| = \frac{\sqrt{\Delta}}{|a|} = \frac{\sqrt{100 - 4b}}{1} = 2$$

$$\rightarrow 2\sqrt{100 - 4b} = 2 \rightarrow b = 24 \quad |(a_1 \times \beta_1) - (a_2 \times \beta_2)| = |a - b| = |3 - 24| = +21$$

$$y = -ax^2 + ax + 2 \rightarrow \text{ext} \left| \begin{aligned} \frac{b}{f_a} &= \frac{-a}{-f_a} = \frac{1}{f} \\ \rightarrow \frac{-9}{f} + \frac{a}{f} + 2 &= \frac{a+1}{f} \end{aligned} \right. \quad (1)$$

$$y = 1bx^2 - bx - 1 \xrightarrow{(\frac{1}{f}, \frac{a+1}{f})} \frac{a+1}{f} = \frac{b}{f} - \frac{b}{f} - 1 \rightarrow a+1 = -f \rightarrow a = -14$$

$$\text{ext} \left| \begin{aligned} \frac{b}{f_a} &= \frac{b}{f_b} = \frac{1}{f} \\ \rightarrow \frac{b}{14} - \frac{b}{f} - 1 &= \frac{-b-1}{14} \end{aligned} \right. \quad b - a = -9 + 14 = 5$$

$$\frac{-b-1}{14} = \frac{14}{14} - \frac{14}{f} + 2 = \frac{f-2}{14} \rightarrow -b-1 = f-2 \rightarrow b = -9$$

$$y = 2\omega ax^2 + \epsilon x + \beta \rightarrow a \cdot \beta = \frac{\beta}{2\omega a} \rightarrow 2\omega a^2 = 1 \rightarrow a = \pm \frac{1}{\omega} \quad (9)$$

زیرا $\beta > a$ باشد ϵ جزو

$$\left. \begin{aligned} a = \frac{1}{\omega} \rightarrow 0 &= 2\omega \times \frac{1}{\omega} \times \frac{1}{2\omega} + \epsilon \times \frac{1}{\omega} + \beta = \beta = -1 \\ a = -\frac{1}{\omega} \rightarrow 0 &= 2\omega \times \left(-\frac{1}{\omega}\right) \times \frac{1}{2\omega} + \epsilon \times \left(-\frac{1}{\omega}\right) + \beta = \beta = +1 \end{aligned} \right\}$$

$$y = -\omega x^2 + \epsilon x + 1 \rightarrow \text{ext} \left| \begin{aligned} \frac{b}{2a} &= \frac{\epsilon}{-\omega} \rightarrow \left(\frac{\epsilon}{\omega}, \frac{9}{\omega}\right) \\ \rightarrow -\omega \times \frac{\epsilon}{\omega} + \epsilon \times \frac{\epsilon}{\omega} + 1 &= \frac{9}{\omega} \end{aligned} \right\}$$

در نتیجه اول

(10) تمام در صورت حاصل ضرب دو عدد صحیحی یکی کمتر از حاصل جمع آن است پس از آن اعتبار برابر 1 باشد.

$$a+b = a^2 + b^2 - 1 \rightarrow 1+b = 1+b^2 - 1 \rightarrow b^2 - b - 1 = 0$$

$$\rightarrow b = -3.6$$

جزو

$$a+b = 1+4 = 5$$