

19, 8

تالیف شادوی ۲۴

الاسی (دهم پیر ۱)

صورتی

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

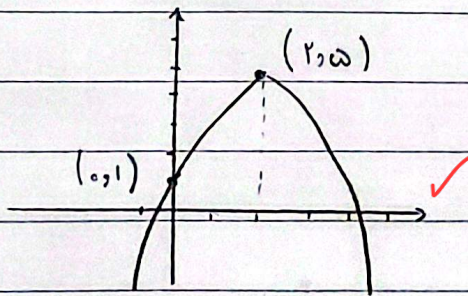
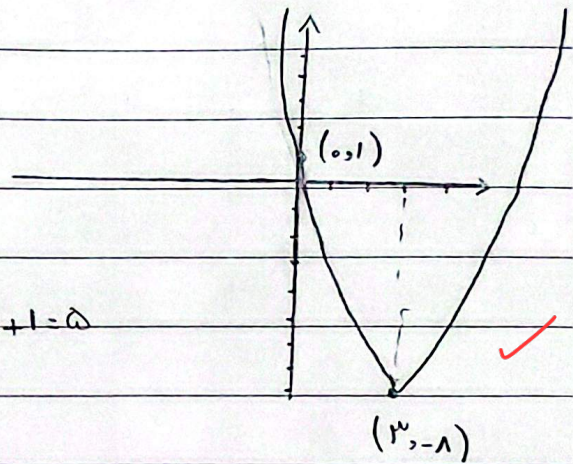
(2)

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

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

(2)

ب)  $y = -x^2 + 8x + 1 \rightarrow \max_{a < 0} \text{ ext} \left| \begin{array}{l} \frac{-b}{2a} = 4 \\ \rightarrow -4 + 8 + 1 = 5 \end{array} \right. \quad (2)$



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

(2)

$\sum 2x^3 + 14x^2 - 9x - 2 = 0 \rightarrow (x - \alpha)(x - \beta)^2 = 0 \rightarrow (x^2 - (\alpha + \beta)x + \alpha\beta)(x - \beta) = 0$

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

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

یافتیم که عمده مشترک برای ۲ و ۱ همین ۱ است پس جمع صورتها را می‌کنیم  
مقدارها را جمع می‌کنیم

$$\rightarrow p - q = k - 1 \rightarrow k = -1 \quad \checkmark$$

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

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

جواب

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

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

$$S_{\Delta} = \frac{\text{مساحت} \times \text{ارتفاع}}{p} \rightarrow \frac{|\alpha - \beta| \times |m|}{p} = \frac{p}{p} \rightarrow \frac{\sqrt{m^2 - 4\alpha m} \times |m|}{p} = \frac{p}{p}$$

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

$$\rightarrow m^2 - 2|m| - p = 0 \xrightarrow{|m|=t} t^2 - 2t - p = 0 \rightarrow t = 1 \pm \sqrt{1+p}$$

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

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

$$|m(m-2)| = p \rightarrow m(m-2) = p \rightarrow \begin{cases} m = -1 \\ m = 3 \end{cases}$$

$$m = -1 \rightarrow y = x^2 + x + 1 \rightarrow \frac{-b}{a} = \frac{-1}{1} = -1$$

$$m = 3 \rightarrow y = x^2 - 3x + 1 \rightarrow \frac{-b}{a} = \frac{3}{1} = 3$$

$$y = ax^2 + 1x + a \rightarrow \min = y < 0$$

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

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

✓ a تبتدأ من 1

تكون الأعداد

(4)

(2)

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

(5)

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

(2)

تكون الأعداد a و b

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

$$\rightarrow 2\sqrt{1 - b} = 1 \rightarrow b = \frac{3}{4} \quad |(a_1, x_{\beta_1}) - (a_2, x_{\beta_2})|$$

$$= |a - b| = |2 - \frac{3}{4}| = +\frac{5}{4}$$

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

(1)

(2)

$$y = 1bx^2 - bx - 1 \xrightarrow{(\frac{1}{2}, \frac{a+1}{2})} \frac{a+1}{2} = \frac{b}{2} - \frac{b}{2} - 1 \rightarrow a+1 = -2 \rightarrow a = -3$$

$$\text{ext} \left| \frac{b}{f_a} = \frac{b}{2b} = \frac{1}{2} \right.$$

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

$$b - a = -9 + 12 = 3$$

$$\frac{-b-1}{2} = \frac{12}{2} - \frac{12}{2} + 1 = -5 \rightarrow -b-1 = -10 \rightarrow b = -9$$

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

$$\left. \begin{array}{l} \alpha = \frac{1}{\omega} \rightarrow 0 = 2\omega \times \frac{1}{\omega} \times \frac{1}{2\omega} + \varepsilon \times \frac{1}{\omega} + \beta = \beta = -1 \\ \alpha = -\frac{1}{\omega} \rightarrow 0 = 2\omega \times \left(-\frac{1}{\omega}\right) \times \frac{1}{2\omega} + \varepsilon \times \left(-\frac{1}{\omega}\right) + \beta = \beta = +1 \end{array} \right\} \text{ زیرا } \beta > \alpha \text{ با علامت } \varepsilon \text{ } (2)$$

$$y = -\omega x^2 + \varepsilon x + 1 \rightarrow \text{ext} \left| \begin{array}{l} \frac{b}{2a} = \frac{\varepsilon}{-2\omega} \rightarrow \left(\frac{\varepsilon}{2\omega}, \frac{9}{\omega}\right) \\ \rightarrow -\omega \times \frac{\varepsilon^2}{4\omega^2} + \varepsilon \times \frac{\varepsilon}{2\omega} + 1 = \frac{9}{\omega} \end{array} \right.$$

در نتیجه اول ✓

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

$$a+b = a^2 + b^2 - 12 \rightarrow 1+b = 1+b^2 - 12 \rightarrow b^2 - b - 12 = 0 \quad (3)$$

$$\rightarrow b = -3, 4$$

$$a+b = 1+4 = 5 \quad \text{چون } \varepsilon^2$$