

تالیف شادی ۱۴

الاسی دهم سیر ۱

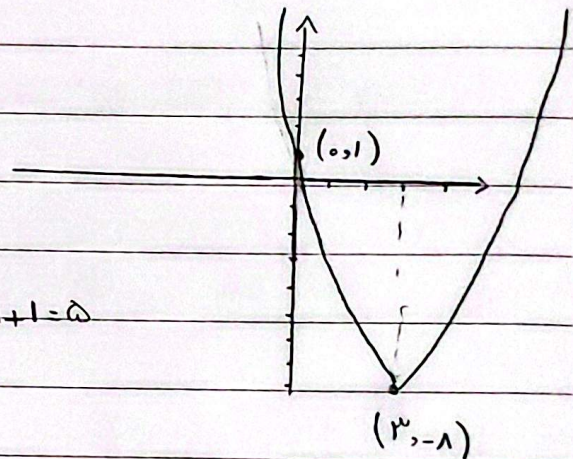
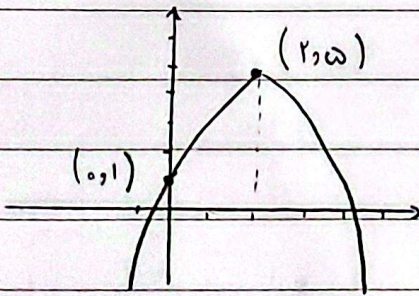
صدا راعی

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

$$\text{ب) } y = -2x^2 + 3x - 5 \rightarrow \max_{a < 0} \text{ ext } \left| \begin{array}{l} \frac{-b}{2a} = \frac{3}{-4} \\ \rightarrow (-2) \times \frac{9}{16} + 3 \times \frac{3}{4} - 5 = \frac{-21}{8} \end{array} \right.$$

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

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



(۳) فضای معادله درجه سه دارای یک یا سه حقیقی و یک یا سه مجازی دارد:

$$2x^3 + 12x^2 - 9x - 2 = 0 \rightarrow (x - \alpha)(x - \beta)^2 = 0 \rightarrow (x^2 - (\alpha + \beta)x + \alpha\beta)(x - \beta) = 0$$

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

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

یا قسمت درجه ۳ بر ۱ و ۲ کنیم بذر است پس جمع ضرایب مثل می
مورد با درج برابر است.

$$\rightarrow 2 - 9 = k - 2 \rightarrow \boxed{k = -3}$$

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

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

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

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

$$S_{\Delta} = \frac{\text{ارتفاع} \times \text{پایه}}{2} \rightarrow \frac{|\alpha - \beta| \times |m|}{2} = \frac{3}{4} \rightarrow \frac{\sqrt{m^2 + 4 + 4m} - 1m}{2} \times |m| = \frac{3}{2} \quad (3)$$

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

$$\rightarrow m^2 - 2|m| - 3 = 0 \quad |m| = t \quad t^2 - 2t - 3 = 0 \rightarrow t = -1, 3$$

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

$$y = x^2 - mx + 1 \rightarrow x_{\text{جو}} = \frac{-b}{a} = \frac{\pm 3}{2} = \boxed{\pm 1.5}$$

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

(4)

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

$$\rightarrow 1a^2 - Va - 11 = 0 \rightarrow a = \frac{V \pm \sqrt{4V^2}}{14} = \frac{V}{7}, \frac{-9}{14}$$

بالنسبة لـ a

عند $a > 0$

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

(5)

$$\rightarrow |a - 1| = \frac{V}{1} \rightarrow a = -1, 3$$

عند $a < 0$ و $a + \beta$ بالمتوسط

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

$$\rightarrow \sqrt{100 - 4b} = \frac{V}{1} \rightarrow b = 24 \quad |(\alpha_1, \beta_1) - (\alpha_2, \beta_2)|$$

$$= |a - b| = |3 - 24| = 21$$

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

(1)

$$y = f_b x^2 - b x - 1 \xrightarrow{(\frac{1}{f}, \frac{a+1}{f})} \frac{a+1}{f} = \frac{b}{f} - \frac{b}{f} - 1 \rightarrow a+1 = -f, a = -12$$

$$\text{ext} \left| \frac{-b}{f_a} = \frac{b}{f_b} = \frac{1}{f} \right.$$

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

$$b - a = -12 + 12 = -f$$

$$\left(\frac{1}{f}, \frac{-b-1}{f} \right)$$

$$\frac{-b-1}{f} = \frac{12}{14} + \frac{12}{f} + 1 = \frac{24}{f} \rightarrow -b-1 = 24 \rightarrow b = -25$$

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

برای $d = \frac{1}{\omega}$ $0 = 2\omega \times \frac{1}{\omega} \times \frac{1}{2\omega} + \varepsilon \times \frac{1}{\omega} + \beta = \beta = -1$ زیرا d باید مثبت غرض

برای $d = -\frac{1}{\omega}$ $0 = 2\omega \times (-\frac{1}{\omega}) \times \frac{1}{2\omega} + \varepsilon \times (-\frac{1}{\omega}) + \beta = \beta = +1$

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

در نتیجه اول

(10) تنها در صورتی حاصل ضرب دو عدد صحیحی یکی کمتر از حاصل جمع آن است که یکی از اعداد برابر 1 باشد.

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

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

غرض

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