

الف) $y = 2x^2 - \epsilon x + 1$ $a > 0 \rightarrow \min$ $\left\{ \begin{array}{l} \frac{-b}{2a} \rightarrow \frac{\epsilon}{4} = 1 \\ \frac{-\Delta}{4a} \rightarrow y = 2 - \epsilon + 1 = -1 \end{array} \right.$
 نقاط رأس: $(1, -1)$
 نوع سهم: **مینیم**

ب) $y = -2x^2 + 4x - 5$ $a < 0 \rightarrow \max$ $\left\{ \begin{array}{l} \frac{-b}{2a} = \frac{2}{-2} = -1 \\ y = -\frac{18}{14} + \frac{4}{2} - 5 = -\frac{31}{7} \end{array} \right.$
 نقاط رأس: $(\frac{2}{-2}, \frac{31}{-7})$
 نوع سهم: **مکسیم**

الف) $y = x^2 - 4x + 1$ $a > 0 \rightarrow \min U$ $\left\{ \begin{array}{l} \frac{4}{2} = 2 \\ -1 \end{array} \right.$
 جدول:

x	0	2	4
y	1	-1	1

 نمودار سهمی با رأس در (2, -1)
 نوع سهم: **مینیم**

ب) $y = -x^2 + \epsilon x + 1$ $a < 0 \rightarrow \max$ $\left\{ \begin{array}{l} \frac{-\epsilon}{-2} = 2 \\ \delta \end{array} \right.$
 جدول:

x	0	2	4
y	1	5	1

 نمودار سهمی با رأس در (2, 5)
 نوع سهم: **مکسیم**

۳- چون این عامل ساده است پس $x^2 - (\alpha + \beta)x + \alpha\beta$ $\xrightarrow{\alpha + \beta = 1, \alpha\beta = -2}$ $x^2 - x - 2$
 $\epsilon x^2 + kx^2 - 9x - 2 = (x^2 - x - 2)(\epsilon x + 8)$
 $\epsilon x^2 + kx^2 - 9x - 2 = \epsilon x^2 + (\delta - \epsilon)x^2 + (-\delta - 1)x - 2\delta$
 $-\delta - 1 = -9 \rightarrow \delta = 1 \rightarrow \frac{1}{\delta} - \epsilon = k \rightarrow k = -3$
۵

۴- $|\alpha - \beta| = \frac{\sqrt{\Delta}}{|\alpha|} = 1$ $\frac{\sqrt{(2m)^2 - \epsilon(1)(m)}}{1} = \sqrt{4m^2 - \epsilon m} = 1 \xrightarrow{\text{تکون}}$ $4m^2 - \epsilon m = 1$
 $\rightarrow 4m^2 - \epsilon m - 1 = 0 \rightarrow m = \frac{\epsilon \pm \sqrt{14 + 16}}{8} = \frac{2 \pm \sqrt{13}}{4}$
 $\alpha\beta = \frac{c}{a} = \frac{-m}{4}$
 جوابها: $-\frac{2 + \sqrt{13}}{4}$ و $-\frac{2 - \sqrt{13}}{4}$
۶،۵

تکلف در ریشه و ضرایب از مرتبه

$$S_{\Delta} = \frac{\text{تعداد} \times \text{ارتفاع}}{2} = \frac{4}{\varepsilon}$$

$$|\alpha - \beta| = \frac{\sqrt{\Delta}}{|\alpha|} \rightarrow \frac{\sqrt{(m+2)^2 - \varepsilon \times 2 \times m}}{2} = \frac{\sqrt{m^2 + \varepsilon + \varepsilon m - 4m}}{2}$$

تکلف ریشه ها

$$\rightarrow \frac{\sqrt{(m-2)^2}}{2} \rightarrow \frac{m-2}{2}$$

$$\frac{\frac{m-2}{2} \times m}{2} = \frac{4}{\varepsilon} \rightarrow \frac{m-2}{2} \times m = \frac{4}{\varepsilon} \rightarrow m(m-2) = \frac{4}{\varepsilon} \rightarrow m=3, m=-1$$

برای رأس معنی

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

$m=1 \rightarrow y = x^2 + x + 1$

$m=3 \rightarrow y = x^2 - 3x + 1$

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

$$\frac{1}{\varepsilon} - \frac{1}{2} + 1 = \frac{4}{\varepsilon}$$

$$\frac{3}{2}$$

$$\frac{9}{\varepsilon} - \frac{9}{2} + 1 = -\frac{5}{\varepsilon}$$

$$-\frac{\Delta}{\varepsilon a} \rightarrow -\frac{9 - \varepsilon a^2}{\varepsilon a} = \frac{4}{\lambda} \rightarrow a - \frac{9}{\varepsilon a} = \frac{4}{\lambda} \xrightarrow{\times \lambda a} \lambda a^2 - 9a - 4\lambda = 0$$

$$a = \frac{9 \pm \sqrt{81 + 16\lambda^2}}{2\lambda}$$

یک مقدار

برای اینکه معنی min داشته باشد

باید $a > 0$ باشد پس: $a = -\frac{9}{\lambda}$

$$x^2 - (a+1)x + a = 0 \xrightarrow{\text{ریشه ها}} n, n+2$$

$$S = \frac{-b}{a} = a+1 = n+(n+2) \rightarrow a+1 = 2n+2 \rightarrow a = 2n+1$$

$$p = \frac{c}{a} = a = n(n+2) \rightarrow a = n^2 + 2n$$

چون n طبیعی است $n=1$

$$\rightarrow a = 2(1) + 1 = 3 = p$$

$$x^2 - (2a+1)x + b = 0 \xrightarrow{\text{ریشه ها}} m, m+2$$

$$S = 2a+1 \xrightarrow{a=3} 7 = m+(m+2) = 2m+2 \rightarrow m = \varepsilon$$

$$p = \varepsilon \times 4 = 2\varepsilon$$

تکلف حاصل ضربها $\Rightarrow 2\varepsilon - 3 = 21$

$$y = ax^2 + ax + 2 \xrightarrow{\text{رأسی}} \left. \begin{aligned} x &= \frac{-a}{-2a} = \frac{1}{2} \\ y &= -a\left(\frac{1}{2}\right) + a\left(\frac{1}{2}\right) + 2 = \frac{a}{2} + 2 \end{aligned} \right\} \left(\frac{1}{2}, \frac{a}{2} + 2\right)$$

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

چون درستی جوابات:

$$y = 2bx^2 - bx - 1 \xrightarrow{\text{رأسی}} \left. \begin{aligned} x &= \frac{b}{2b} = \frac{1}{2} \\ y &= 2b\left(\frac{1}{4}\right) - b\left(\frac{1}{2}\right) - 1 = -\frac{b}{2} - 1 \end{aligned} \right\} \left(\frac{1}{2}, -\frac{b}{2} - 1\right)$$

$$-\frac{b}{2} - 1 = -a\left(\frac{1}{4}\right) + a\left(\frac{1}{2}\right) + 2 \xrightarrow{a = -12} = \frac{3}{2} - 2 + 2 = -\frac{1}{2}$$

چون درستی جوابات:

$$\rightarrow -\frac{b}{2} - 1 = -\frac{1}{2} \rightarrow b = -4$$

$$b - a \Rightarrow -4 - (-12) = 8$$

$$y = 2\alpha\alpha x^2 + \epsilon x + \beta \quad S \Rightarrow d + \beta = -\frac{\epsilon}{2\alpha\alpha} \quad P \Rightarrow d\beta = \frac{\beta}{2\alpha\alpha} \xrightarrow{\beta \neq 0} \alpha = \frac{1}{2\alpha\alpha} - 9$$

$$\frac{1}{2\alpha\alpha} + \beta = -\frac{\epsilon}{2\alpha\alpha} \rightarrow \beta = -\frac{\epsilon}{2\alpha\alpha} = -\frac{1}{\alpha\alpha}$$

$$\beta > d \rightarrow -\frac{1}{\alpha\alpha} > \frac{1}{2\alpha\alpha} \xrightarrow{\text{پس}} \alpha < 0$$

$x = \frac{-\epsilon}{2\alpha\alpha}$ $\xrightarrow{\alpha < 0 \text{ چون}} x > 0$ $\xrightarrow{\text{چون بھی درجہ پائے ات درجہ ہائے کی + دیکھی}}$ $y > 0$

یعنی: رأس رزنامہ اہل

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

-10

$$\begin{cases} S \Rightarrow a + b = a^r + b^r - 1x = (a + b)^r - r ab - 1x \\ P \Rightarrow ab = a + b - 1 \end{cases}$$

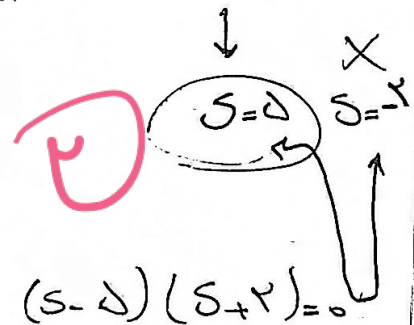
$$a + b = (a + b)^r - r(a + b - 1) - 1x$$

چون طبیعی اند

$$S = S^r - r(S - 1) - 1x$$

$$S = S^r - rS - 10$$

$$S^r - rS - 10 = 0 \rightarrow (S - 1)(S + 2) = 0$$



$$\sqrt{\alpha} - \sqrt{\beta} = 1 \xrightarrow{\text{قوانین}} \alpha + \beta - 2\sqrt{\alpha\beta} = 1 \rightarrow \sqrt{m} - 2\sqrt{n} = 1 \quad (\sqrt{m} = t)$$

$$\sqrt{t} - 2\sqrt{n} = 1 \rightarrow t = 1 \quad \sqrt{m} = t \rightarrow m = 1$$

$$\hookrightarrow t = \frac{1}{r}$$

$$\sqrt{m} - 2\sqrt{n} = 1 \rightarrow \sqrt{m} = 1 + 2\sqrt{n} \rightarrow \frac{c}{a} = \frac{1}{r}$$