

الف)  $y = 2x^2 - 4x + 1$

ext |  $-\frac{b}{2a} = 1$   
 $-\frac{\Delta}{4a} = -\frac{1}{1} = -1$

الف)  $y = x^2 - 4x + 1$   $\begin{matrix} n=0 \\ c=1 \end{matrix}$

ext |  $-\frac{b}{2a} = \frac{4}{2} = 2$   $a > 0$   
 $-\frac{\Delta}{4a} = 9 - 16 + 1 = -4$

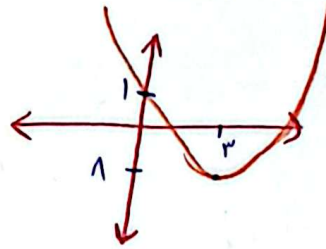
ب)  $y = -x^2 + 4x + 1$   $\begin{matrix} n=0 \\ c=1 \end{matrix}$

ext |  $-\frac{b}{2a} \rightarrow -\frac{4}{-2} = 2$   $a < 0$   
 $-\frac{\Delta}{4a} = 0$

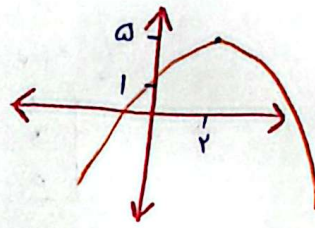
1- تابع min دار است ( $a > 0$ )

ب)  $y = -2x^2 + 3x - 5$

تابع max دار است ( $a < 0$ )  
ext |  $-\frac{3}{-4} = \frac{3}{4}$   
 $\frac{-9 + 40}{-4} = -\frac{31}{4}$



-2



$x^2 - 5x + p \xrightarrow{s} \alpha + \beta = 1$   
 $\xrightarrow{p} \alpha \beta = -2$  }  $x^2 - x - 2 \begin{cases} \alpha = 1, \beta = 2 \\ \alpha = 2, \beta = -1 \end{cases}$

-3

$\alpha = -1 \xrightarrow{\beta} x^2 + kx - 9x - 2 = 0 \rightarrow -5 + k + 9 - 2 = 0 \Rightarrow k = -3$   
 $\beta = -1$

$\sqrt{\alpha} - \sqrt{\beta} = 1 \xrightarrow{\text{مربع}} \alpha + \beta - 2\sqrt{\alpha\beta} = 1 \rightarrow 5 - 2\sqrt{p} = 1$

-4

$\rightarrow 3 - 2\sqrt{m} + 1 = 0 \Rightarrow \sqrt{m} = 1 \Rightarrow m = 1 \Rightarrow 2x^2 + x - 1 = 0$

$y = 2x^2 - (m+2)x + m$   $\alpha - \beta = \frac{\sqrt{\Delta}}{|2a|} = \frac{\sqrt{(m+2)^2 - 4m}}{2} = \frac{\sqrt{(m-2)^2}}{2}$   
 $= \frac{|m-2|}{2} \Rightarrow s = \frac{1}{2} \times \frac{|m-2|}{2} = \frac{m}{4} \rightarrow |m-2|m = 3 \Rightarrow m^2 - 2m - 3 = 0$

$\Rightarrow \begin{matrix} m = 3 \\ m = -1 \end{matrix}$

$$y = a n^2 + 2n + a \rightarrow n = -\frac{2}{2a} \quad a \left(-\frac{2}{2a}\right)^2 + 2 \left(-\frac{2}{2a}\right) + a = \frac{V}{\lambda} \rightarrow y_{min} \quad -6$$

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

$$\frac{-9 + 4a^2}{4a} = \frac{V}{\lambda} \Rightarrow \lambda a^2 - Va - 11 = 0$$

$$\Delta = 49 + 44a = 92a$$

$$\lambda a^2 - Va - 11 = 0$$

$$a = \frac{V \pm \sqrt{92a}}{2\lambda} \quad \left. \begin{array}{l} a_1 = \frac{22}{13} = 2 \Rightarrow \text{یک مقدار} \\ a_2 = -\frac{11}{13} = -\frac{9}{1} \Rightarrow X \end{array} \right\} \begin{array}{l} S > 0 \\ P < 0 \end{array}$$

$$n^2 - (a+1)n + a = 0 \xrightarrow{a+b+c=0} \left. \begin{array}{l} n_1 = 2 \\ n_2 = 1 \end{array} \right\} \text{فرد متوالی} \quad -7$$

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

$$\Rightarrow n^2 - 10n + b = 0 \xrightarrow{s=10} \left. \begin{array}{l} n_1 = 2 \\ n_2 = 8 \end{array} \right\} \text{زوج متوالی}$$

$$\Rightarrow P_2 - P_1 = 6 \times 2 - 3 \times 1 \Rightarrow 2 \cdot 2 - 3 = 1$$

$$y_1 = -a n^2 + a n + 2 \rightarrow \text{ext} \left| \begin{array}{l} \frac{1}{2} \\ a+1 \end{array} \right.$$

$$y_2 = 2b n^2 - b n - 1 \rightarrow \text{ext} \left| \begin{array}{l} \frac{b}{2a} = \frac{1}{2} \\ -\frac{\Delta}{4a} = \frac{-b-1}{\lambda} \end{array} \right.$$

$$\frac{2}{2} - 2 + 2 = -\frac{1}{2} = \frac{-b-1}{\lambda} \Rightarrow b = -3 \quad b - a \Rightarrow$$

$$\frac{b}{2} - \frac{b}{2} - 1 = \frac{a+1}{2} \Rightarrow a = -12 \Rightarrow -3 - (-12) = 9 \quad -9$$

$$\text{اگر } \beta > \alpha, y = 2\alpha a n^2 + \beta n + \beta \rightarrow \alpha + \beta = -\frac{\beta}{2\alpha a}$$

$$\left. \begin{array}{l} X \text{ اگر } \alpha = \frac{1}{a} \Rightarrow \beta = -1 \\ \checkmark \text{ اگر } \alpha = -\frac{1}{a} \Rightarrow \beta = 1 \end{array} \right\} \beta > \alpha \Rightarrow y_s = \frac{-b}{2a} = -\frac{\beta}{-10} = \frac{\beta}{10} = \frac{\beta}{\alpha}$$

$$y = -\alpha \times \frac{\beta}{2a} + \frac{\beta}{a} + 1 = \frac{9}{a} \Rightarrow \text{راس در ناصبه اول}$$

$$y = n^2 - (a^2 + b^2 - 12)n + a + b - 1 = 0 \quad \left. \begin{array}{l} s = a^2 + b^2 - 12 = s = \alpha + \beta \\ p = a + b + 1 = s - 1 \end{array} \right\} \quad -10$$

$$\Rightarrow s = s^2 - 2p - 12 \quad ab = a + b - 1$$

$$\Rightarrow s = s^2 - 2s + 2 - 12 \Rightarrow s^2 - 3s - 10 = 0 \quad (s-5)(s+2) = 0 \Rightarrow \left. \begin{array}{l} s=5 \\ s=-2 \end{array} \right\}$$