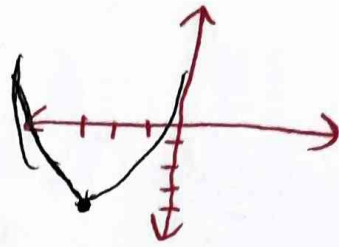


ext $\left| \frac{-b}{2a} \right| \Rightarrow \left| \frac{-4}{2} \right| \Rightarrow y = 9 - 11 + 5 \Rightarrow y = -4 \Rightarrow \text{ext} \left| \frac{-3}{-4} \right|$ (الف)

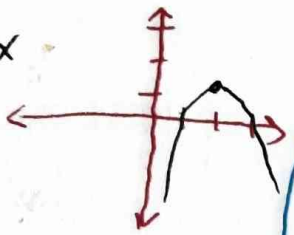
$\Rightarrow$ if $a > 0$ we have Min



(ب)

ext $\left| \frac{-b}{2a} \right| \Rightarrow \left| \frac{-4}{2} \right| \Rightarrow y = -4 + 11 - 3 \Rightarrow y = 4 \Rightarrow \text{ext} \left| \frac{3}{4} \right|, a < 0$ (الف)

$\Rightarrow$ Max



if $y = 0 \Rightarrow 3 = -x^2 + 4x$

نشان ندهی

$(1, 3)$

محور x را در این نقاط قطع می کند

(ب)

$\Delta > 0 \Rightarrow 9 - 11a > 0 \Rightarrow a = \left(\frac{9}{11}, -\infty \right)$ (الف)

$\Delta = 0 \Rightarrow 9 - 11a = 0 \Rightarrow$ if $a = \frac{9}{11}$ ریشه مضاعف دارد (ب)

$\Delta < 0 \Rightarrow 9 - 11a < 0 \Rightarrow a = \left(\frac{9}{11}, +\infty \right)$ (ج)

$\Delta \geq 0 \Rightarrow 9 - 11a \geq 0 \Rightarrow a = \left[\frac{9}{11}, -\infty \right)$ (د)

$-x^2 - 2x - 1 + 2 \Rightarrow x^2 - 2x + 1 = 2 \Rightarrow (x-1)^2 = 2$ (الف)

$\Rightarrow x-1 = \pm\sqrt{2} \Rightarrow x = \begin{cases} \sqrt{2}+1 \\ -\sqrt{2}+1 \end{cases}$

$x^2 - x - 1 = 0 \xrightarrow{+\frac{1}{4}} x^2 - x + \frac{1}{4} = \frac{5}{4} \Rightarrow \left(x - \frac{1}{2}\right)^2 = \frac{5}{4}$ (ب)

$\Rightarrow x - \frac{1}{2} = \pm\sqrt{\frac{5}{4}} + \frac{1}{2} \Rightarrow x = \begin{cases} \sqrt{\frac{5}{4}} + \frac{1}{2} \\ -\sqrt{\frac{5}{4}} + \frac{1}{2} \end{cases}$

$b^2 - 4ac = \Delta \Rightarrow 4^2 - 4 = 12 \Rightarrow \frac{-b \pm \sqrt{\Delta}}{2a} \Rightarrow \frac{2 \pm \sqrt{12}}{2} \Rightarrow \frac{2 + \sqrt{12}}{2} \text{ یا } \frac{2 - \sqrt{12}}{2}$ (الف)

$\Rightarrow 1 + \sqrt{3}, 1 - \sqrt{3}$

$b^2 - 4ac = \Delta \Rightarrow 1 + 16 = 17 \Rightarrow \frac{-1 \pm \sqrt{17}}{2} \Rightarrow \frac{-1 + \sqrt{17}}{2} \text{ یا } \frac{-1 - \sqrt{17}}{2}$ (ب)

$$(x-f)(x-v)=0 \Rightarrow x-f=0 \Rightarrow x=f \quad \vee \quad x-v=0 \Rightarrow x=v \quad \text{(الف)}$$

$$(x+v)(x-f)=0 \Rightarrow x+v=0 \Rightarrow x=-v \quad \vee \quad x-f=0 \Rightarrow x=f \quad \text{(ب)}$$

$$2x^2 - 12x + v = 0 \Rightarrow x^2 - 6x + \frac{v}{2} = 0 \Rightarrow (x-5)(x-v) = 0 \quad \text{(الف)}$$

$$\Rightarrow x = \frac{5}{1} \quad \vee \quad \frac{v}{2} \Rightarrow 1 \quad \vee \quad \frac{v}{2}$$

$$3x^2 - 10x + v = 0 \Rightarrow x^2 - 10x + \frac{v}{3} = 0 \Rightarrow (x-v)(x-3) = 0 \quad \text{(ب)}$$

$$\Rightarrow x = \frac{3}{1} \quad \vee \quad \frac{v}{3} \Rightarrow 1 \quad \vee \quad \frac{v}{3}$$

$$2x^2 - 5x + 2 = 0 \Rightarrow x^2 - 5x + 2 = 0 \Rightarrow (x-2)(x-3) = 0 \Rightarrow x = \frac{2}{1} \quad \vee \quad \frac{3}{1} = 1 \quad \vee \quad \frac{3}{1} \quad \text{(الف)}$$

$$2x^2 + 5x + 2 = 0 \Rightarrow x^2 + 5x + 2 = 0 \Rightarrow (x+3)(x+2) = 0 \Rightarrow x = -\frac{3}{1} \quad \vee \quad -1 \quad \text{(ب)}$$

$$b^2 - 4ac = \Delta \Rightarrow 25 - 16 = 9 \Rightarrow x = \frac{5 \pm \sqrt{9}}{2} = \frac{5+3}{2} \quad \vee \quad \frac{5-3}{2} \quad \text{(ج)}$$

$$b^2 - 4ac = \Delta \Rightarrow 16 - 16 = 0 \Rightarrow \Delta < 0 \quad \text{(د)}$$

$$S = \frac{-b}{a} \quad P = \frac{c}{a} \Rightarrow S = \frac{3}{1} = 3, \quad P = \frac{-2}{1} = -2$$

$$3x^2 - 2(-2) = 9 + 4 = 13 \quad \text{(الف)}$$

$$3x^2 - 3(x)(-2) = 2v + 11 = 5 \quad \text{(ب)}$$

$$a) \quad \frac{(a-k)! \times k!}{(k-a)! \times a!} = \frac{a! \times k!}{(k-a)! \times a!} = v \times 3 + 5 \times 9 \Rightarrow 21 + 45 = 66 \quad \text{(الف)}$$

$$\frac{a! \times k!}{(k-a)! \times a!} = \frac{a! \times k!}{(k-a)! \times a!} = (3 \times 5 \times 7) \times (5 \times 7) \Rightarrow 15 \times 21 = 315 \quad \text{(ب)}$$