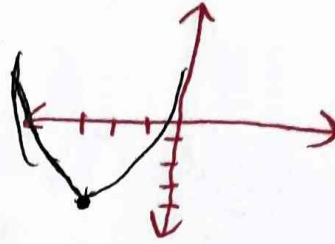


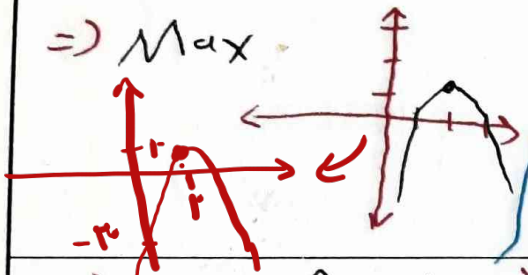
ext $\left| \frac{-b}{2a} \right| \Rightarrow \left| \frac{-4}{2} \right| \Rightarrow y = 9 - 11 + 5 \Rightarrow y = -4 \Rightarrow \text{ext} \left| \frac{-3}{-4} \right|$ (الف)

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



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 نقص

$(1, 3)$

محور x را در این نقاط قطع می کند

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

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

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

$b^2 - 4ac = \Delta \Rightarrow 4^2 - 4 = 12 \Rightarrow \frac{-b \pm \sqrt{\Delta}}{2a} \Rightarrow \frac{2 \pm \sqrt{12}}{2} = \frac{2 \pm 2\sqrt{3}}{2} = 1 \pm \sqrt{3}$ (الف)

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

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

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

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

$$2x^2 - 12x + v = 0 \Rightarrow x^2 - 6x + \frac{v}{2} = 0 \Rightarrow (x-3)(x-\frac{v}{2}) = 0 \Rightarrow x=3 \vee x=\frac{v}{2} \quad (\text{الف})$$

$$2x^2 - 10x + v = 0 \Rightarrow x^2 - 5x + \frac{v}{2} = 0 \Rightarrow (x-2)(x-\frac{v}{2}) = 0 \Rightarrow x=2 \vee x=\frac{v}{2} \quad (\text{ب})$$

$$2x^2 - 5x + 2 = 0 \Rightarrow x^2 - 2.5x + 1 = 0 \Rightarrow (x-2)(x-0.5) = 0 \Rightarrow x=2 \vee x=0.5 \quad (\text{الف})$$

$$2x^2 + 5x + 2 = 0 \Rightarrow x^2 + 2.5x + 1 = 0 \Rightarrow (x+2)(x+0.5) = 0 \Rightarrow x=-2 \vee x=-0.5 \quad (\text{ب})$$

$$b^2 - 4ac = \Delta \Rightarrow 25 - 4 = 21 \Rightarrow x = \frac{5 \pm \sqrt{21}}{2} \Rightarrow \frac{5+\sqrt{21}}{2} \vee \frac{5-\sqrt{21}}{2} \quad (\text{ج})$$

$$b^2 - 4ac = \Delta \Rightarrow 16 - 4 = 12 \Rightarrow \Delta < 0 \quad (\text{د})$$

$$S = \frac{-b}{a} \quad P = \frac{c}{a} \Rightarrow S = \frac{5}{1} = 5, P = \frac{2}{1} = 2$$

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

$$2x^2 - 2(2)(-2) = 2V + 11 = 5A$$

$$a! \Rightarrow \frac{2!}{(2-1)! \times 1!} + \frac{1!}{(1-1)! \times 1!} = 2 \times 1 + 1 \times 1 = 3 \quad (\text{الف})$$

$$\frac{2!}{(2-1)! \times 1!} - \frac{1!}{(1-1)! \times 1!} = (2 \times 1 \times 1) - (1 \times 1) = 1 \quad (\text{ب})$$