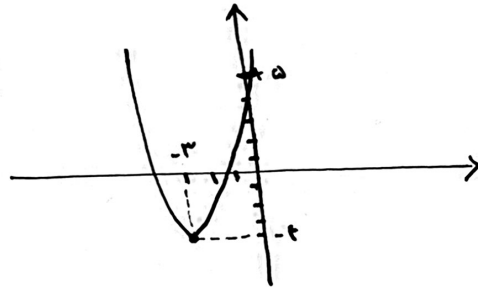


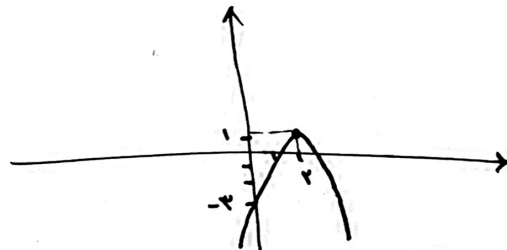
$$\begin{array}{l} \text{ext} \\ \left| \begin{array}{l} \frac{-b}{2a} = \frac{-6}{2} = -3 \\ \frac{-\Delta}{4a} = \frac{-16}{4} = -4 \end{array} \right. \end{array}$$

Min $\rightarrow$ عرض از مبدأ $\rightarrow \omega$



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



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Max $\rightarrow$ عرض از مبدأ $\rightarrow -2$ $\Rightarrow a+b+c=0 \rightarrow +1 = -3 \Rightarrow +4$ (ب)

$$\Delta = b^2 - 4ac \rightarrow 49 - 16a$$

الف) $\Delta > 0 \Rightarrow b^2 - 4ac > 0 \rightarrow 49 - 16a > 0 \rightarrow 49 > 16a \rightarrow \frac{49}{16} > a$

ب) $\Delta = 0 \Rightarrow b^2 - 4ac = 0 \rightarrow 49 - 16a = 0 \rightarrow 16a = 49 \rightarrow a = \frac{49}{16}$

ج) $\Delta < 0 \Rightarrow b^2 - 4ac < 0 \rightarrow 49 - 16a < 0 \rightarrow 49 < 16a \rightarrow \frac{49}{16} < a$

د) $\Delta \geq 0 \Rightarrow b^2 - 4ac \geq 0 \rightarrow 49 - 16a \geq 0 \rightarrow 49 \geq 16a \rightarrow \frac{49}{16} \geq a$

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الف) $x^2 - 2x - 1 + 2 \leq 2 \rightarrow (x-1)^2 \leq 2 \rightarrow x-1 \leq \pm\sqrt{2} \rightarrow x \leq 1 \pm \sqrt{2}$

ب) $x^2 - x - 1 \leq 0 \rightarrow x^2 - x - 1 + \frac{\omega}{2} = \frac{\omega}{2} \rightarrow x^2 - x + \frac{1}{4} \leq \frac{\omega}{2} \rightarrow (x - \frac{1}{2})^2 \leq \frac{\omega}{2} \rightarrow x \leq \frac{1 \pm \sqrt{\omega}}{2}$

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$$\Delta = b^2 - 4ac \quad x = \frac{-b \pm \sqrt{\Delta}}{2a}$$

الف) $x^2 - 2x - 1 \leq 0 \rightarrow \Delta \leq 1 \rightarrow x \leq \frac{2 \pm \sqrt{1}}{2} \rightarrow \frac{2 \pm 1}{2} \leq 1 \pm 1 \rightarrow \frac{1 \pm \sqrt{1}}{2} \rightarrow \frac{1 \pm 1}{2} \rightarrow \frac{1 \pm \sqrt{1}}{2}$

ب) $x^2 + 2x - 4 \leq 0 \rightarrow \Delta \leq 1 + 16 \leq 17 \rightarrow x \leq \frac{-2 \pm \sqrt{17}}{2} \rightarrow \frac{-2 \pm \sqrt{17}}{2}$

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الف) $x^2 - 11x + 28 = 0$ $(x-4)(x-7) \Rightarrow \begin{cases} x=4 \\ x=7 \end{cases}$ ب) $x^2 + 4x - 28 = 0$ $(x-4)(x+7) \Rightarrow \begin{cases} x=4 \\ x=-7 \end{cases}$	9
الف) $5x^2 - 12x + 7 = 0 \rightarrow x^2 - 12x + 35 = 0$ $(x-5)(x-7) \Rightarrow \begin{cases} x=5 \\ x=7 \end{cases}$ ب) $3x^2 - 10x + 7 = 0 \rightarrow x^2 - 10x + 21 = 0$ $(x-3)(x-7) \Rightarrow \begin{cases} x=3 \\ x=7 \end{cases}$	7
الف) $2x^2 - 5x + 3 = 0$ $a+b+c=0 \rightarrow x=1, \frac{c}{a} = \frac{3}{2}$ ب) $2x^2 + 5x + 3 = 0$ $a+c < b \rightarrow x=-1, \frac{-c}{a} = \frac{-3}{2}$ ج) $x^2 - 2x + 1 = 0$ $\Delta = b^2 - 4ac = 4 - 4 = 0$ $x = \frac{-b \pm \sqrt{\Delta}}{2a} = \frac{2 \pm 0}{2} = 1$ د) $x^2 + 7x + 9 = 0$ $\Delta = b^2 - 4ac = 49 - 36 = 13 > 0$	1
$s = \frac{-b}{a} = \frac{-7}{1} = -7$ $p = \frac{c}{a} = \frac{1}{1} = 1$ الف) $s^2 - 2p \rightarrow (3)^2 - (2 \times 2) = 1$ ب) $s^3 - 3sp \rightarrow (3)^3 - (3 \times 3 \times 2) = 27 - 18 = 9$	9
الف) $\left(\frac{7}{5}\right) + \left(\frac{9}{2}\right) = \frac{7 \times 4 \times 5!}{5! \times 4!} + \frac{9 \times 1 \times 2!}{4! \times 2!} = 21 + 3 = 24$ ب) $\left(\frac{9}{3}\right) - \left(\frac{1}{2}\right) = \frac{9 \times 1 \times 2 \times 4!}{3! \times 4!} - \frac{1 \times 2 \times 4!}{2! \times 4!} = 12 - 2 = 10$	10