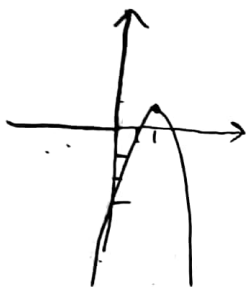


الف) $\min$, $\left| \frac{-b}{2a} \right| \leftarrow \begin{matrix} -3 \\ -4 \end{matrix}$

$-3 = \frac{-b}{2a}$

(ب)

$x^2 + 4x + 5 = 9 + 1 + 5 = -4$



الف) $\max$, $\frac{-b}{2a} = 1$, $1 \leftarrow -4 + 1 - 3 = 1$

$\begin{cases} -x^2 + 4x - 3 = 0 \\ a + b + c = 0 \end{cases} \Rightarrow \begin{cases} x = 1 \\ x = 3 \end{cases}$

$b^2 - 4ac > 0 \Rightarrow 9 - 16a > 0 \Rightarrow a < \frac{9}{16} \rightarrow a < \frac{9}{16}$

$b^2 - 4ac = 0 \Rightarrow 9 - 16a = 0 \Rightarrow a = \frac{9}{16}$

$b^2 - 4ac < 0 \Rightarrow 9 - 16a < 0 \Rightarrow a > \frac{9}{16}$

$b^2 - 4ac \geq 0 \Rightarrow 9 - 16a \geq 0 \Rightarrow a \leq \frac{9}{16}$

الف) $x^2 - 2x - 1 = 0 \Rightarrow x^2 - 2x + 1 - 1 = -1 \Rightarrow (x-1)^2 - 1 = -1 \Rightarrow (x-1)^2 = 0 \Rightarrow x = 1 \pm \sqrt{0} = 1$

ب) $x^2 - x - 1 = 0 \Rightarrow x(x-1) = 0 \Rightarrow \begin{cases} x = 0 \\ x = 1 \end{cases}$

الف) $x^2 - 2x - 1 = 0 \rightarrow \frac{-b \pm \sqrt{b^2 - 4ac}}{2a} \rightarrow \frac{2 \pm \sqrt{4 + 4}}{2} = \frac{2 \pm 2\sqrt{2}}{2} = 1 \pm \sqrt{2}$

ب) $x^2 + x - 5 = 0 \rightarrow \frac{-b \pm \sqrt{b^2 - 4ac}}{2a} \rightarrow \frac{-1 \pm \sqrt{1 + 20}}{2}$

$$\text{الف) } x^2 - 11x + 21 = 0 \Rightarrow (x-4)(x-7) \Rightarrow \begin{cases} x=4 \\ x=7 \end{cases}$$

$$\text{ب) } x^2 + 5x - 21 = 0 \Rightarrow (x-4)(x+7) \Rightarrow \begin{cases} x=4 \\ x=-7 \end{cases}$$

$$\text{الف) } 5x^2 - 12x + 7 = 0 \Rightarrow x^2 - 12x + 14 = 0 \Rightarrow (x-7)(x-2) \Rightarrow \begin{cases} x=7 \\ x=2 \end{cases}$$

$$\text{ب) } 3x^2 - 10x + 7 = 0 \Rightarrow x^2 - 10x + 21 = 0 \Rightarrow (x-7)(x-3) \Rightarrow \begin{cases} x=7 \\ x=3 \end{cases}$$

$$\text{الف) } 2x^2 - 5x + 2 = 0 \Rightarrow a+b+c=0 \Rightarrow x=1 \text{ و } x=\frac{c}{a}=1/2$$

$$\text{ب) } 4x^2 + 5x + 1 = 0 \Rightarrow a+c=b \Rightarrow x=-1 \text{ و } x=\frac{c}{a}=-1/5$$

$$\text{ج) } 2x^2 - 5x + 1 = 0 \Rightarrow \frac{5 \pm \sqrt{17}}{4} \neq$$

$$\text{د) } 4x^2 + 7x + 9 = 0 \Rightarrow \frac{-7 \pm \sqrt{-95}}{4} \in \emptyset \rightarrow \text{ریشه حقیقی ندارد}$$

$$\text{الف) } 9+4=13$$

$$S = \frac{-b}{a} \quad P = \frac{c}{a}$$

$$S = 3 \quad P = -2$$

$$\text{ب) } 27+11=38$$

$$\text{الف) } \begin{pmatrix} 7 \\ 2 \end{pmatrix} + \begin{pmatrix} 9 \\ 2 \end{pmatrix} = \frac{7 \times 9}{2} + \frac{9 \times 1}{2} = 5V$$

$$\begin{pmatrix} 7 \\ 2 \end{pmatrix} = \begin{pmatrix} 7 \\ 0 \end{pmatrix}$$

$$\text{ب) } \begin{pmatrix} 9 \\ 2 \end{pmatrix} - \begin{pmatrix} 1 \\ 2 \end{pmatrix} = \frac{9 \times 1 \times 2}{2} - \frac{1 \times 2}{2} = 140$$