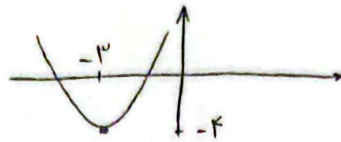


$$x = -\frac{b}{2a} = -\frac{-4}{2} = 2 \quad \min \quad \left| \begin{array}{l} -\frac{4}{2} = -2 \\ -4 \end{array} \right. \quad \text{الف) } 1, 5$$



ب)



$$\max \quad \left| \begin{array}{l} \frac{b}{2a} = 2 \\ 1 \end{array} \right. \quad \text{الف) } 2$$

$$y = -(x^2 - 4x + 3) \Rightarrow x_1 = 1, x_2 = 3 \quad \text{ب) } \checkmark$$

$$\Delta > 0 \rightarrow 9 - 4a > 0 \Rightarrow a < \frac{9}{4}$$

$$\Delta = 0 \rightarrow 9 - 4a = 0 \Rightarrow a = \frac{9}{4}$$

$$\Delta < 0 \rightarrow 9 - 4a < 0 \Rightarrow a > \frac{9}{4}$$

$$a \leq \frac{9}{4} \quad \text{ج) } 2$$

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

$$\text{ب) } (x - \frac{1}{2})^2 - \frac{5}{4} = 0 \rightarrow x = \frac{1}{2} \pm \frac{\sqrt{5}}{2}$$

$$\text{الف) } x^2 - 2x - 1 = 0 \rightarrow \Delta = 4 + 4 = 8 \rightarrow x = \frac{2 \pm 2\sqrt{2}}{2} = 1 \pm \sqrt{2}$$

$$\text{ب) } \Delta = 1 + 16 = 17 \rightarrow x = \frac{-1 \pm \sqrt{17}}{2}$$

الف) $(x-7)(x-4)=0 \rightarrow \begin{cases} x=7 \\ x=4 \end{cases}$

ب) $(x+7)(x-4)=0 \rightarrow \begin{cases} x=-7 \\ x=4 \end{cases}$

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الف) $\Delta x^2 - 12x + 7 = 0 \rightarrow x^2 - 12x + 7 = 0 \rightarrow (x-5)(x-7) = 0$
 $\rightarrow x_1 = \frac{12 \pm \sqrt{144-28}}{2} = \frac{12 \pm \sqrt{116}}{2}$

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ب) $x^2 - 10x + 21 = 0 \rightarrow (x-7)(x-3) = 0 \rightarrow x_1 = \frac{10 \pm \sqrt{100-84}}{2} = \frac{10 \pm \sqrt{16}}{2}$

الف) $(x-1)(2x-3)=0 \rightarrow x_1 = 1, x_2 = \frac{3}{2}$

ب) $(x+1)(2x+3)=0 \rightarrow x_1 = -1, x_2 = -\frac{3}{2}$

ج) $\Delta = 25 - 4 = 21 \rightarrow x = \frac{5 \pm \sqrt{21}}{2}$

د) $\Delta = 49 - 4 \times 9 \times 4 < 0 \rightarrow$ ریشه ندارد.

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الف) $3x^2 + 4 = 13$

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ب) $3x^2 - 13x + 11 = 0$

الف) $\frac{3x^2}{\Delta x \times \Delta x} = 21, \frac{4x}{\Delta x \times \Delta x} = 19 \Rightarrow 39 + 21 = 60$

ب) $\frac{3x^2}{\Delta x \times \Delta x} = 19, \frac{4x}{\Delta x \times \Delta x} = 21 \Rightarrow 19 + 21 = 40$

$\rightarrow 9 \times 11 \times 11 = 11 \times 11 \times 9$

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