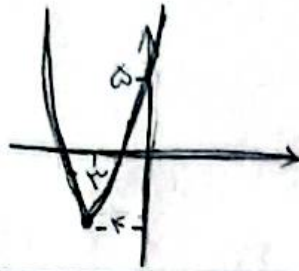


$$\min \left| \frac{-b}{2a} \right| = \Rightarrow \frac{-4}{2} = -2 \Rightarrow \min \left| \frac{-4}{2} \right|$$

(الف)



(ب)

$$\max \left| \frac{-4}{-2} = 2 \right|$$

(الف)

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

$$\begin{array}{c|c} \text{نقاط} & \\ \hline 1 & 0 \\ 3 & 0 \end{array}$$

(ب)

$$x^2 - 2x + a = 0 \Rightarrow c=a \Rightarrow \Delta = b^2 - 4ac \Rightarrow 4 - 4 \times 1 \times a = 4 - 4a$$

(الف)

$$\Delta > 0 \Rightarrow 4 - 4a > 0 \Rightarrow 4 > 4a \Rightarrow a < 1$$

(ب)

$$\Delta < 0 \Rightarrow 4 - 4a < 0 \Rightarrow a > 1$$

(ج)

$$\Delta \geq 0 \Rightarrow 4 - 4a \geq 0 \Rightarrow a \leq 1$$

(د)

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

(الف)

$$\Rightarrow x = 1 + \sqrt{2} \text{ و } x = 1 - \sqrt{2}$$

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$$x^2 - x - 1 = 0 \Rightarrow x^2 - x - 1 + \frac{1}{4} = \frac{1}{4} \Rightarrow x^2 - x + \frac{1}{4} = \frac{1}{4} \Rightarrow$$

(ب)

$$\left(x - \frac{1}{2}\right)^2 = \frac{1}{4} \Rightarrow x - \frac{1}{2} = \pm\sqrt{\frac{1}{4}} \Rightarrow x = \frac{1}{2} + \frac{1}{2} \text{ و } x = \frac{1}{2} - \frac{1}{2}$$

$$\Delta = b^2 - 4a \Rightarrow \Delta = 4 + 4 = 8$$

(الف)

$$x = \frac{-b \pm \sqrt{\Delta}}{2a} = \frac{-2 \pm \sqrt{8}}{2} = \frac{-2 \pm 2\sqrt{2}}{2} = -1 \pm \sqrt{2}$$

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$$\Delta = 1 + 14 = 15$$

$$x = \frac{-b \pm \sqrt{\Delta}}{2a} = \frac{-1 \pm \sqrt{15}}{2}$$

(ب)

$$(x-v)(x-4)=0 \Rightarrow x=v \text{ و } x=4$$

(الف)

$$(x+v)(x-4)=0 \Rightarrow x=-v \text{ و } x=4$$

(ب)

$$\omega x^2 - 12x + v = 0 \Rightarrow x^2 - 12x + 2\omega = 0 \Rightarrow (x-v)(x-5)=0$$

$$\Rightarrow x=v \text{ و } x=5 \Rightarrow x = \frac{v}{\omega} = 1$$

جواب های نهایی $\rightarrow \boxed{\frac{v}{\omega}}$

(الف)

$$2x^2 - 10x + v = 0 \Rightarrow x^2 - 12x + 21 = 0 \Rightarrow (x-v)(x-3) = 0$$

$$\Rightarrow x=v \text{ و } x=3 \Rightarrow x = \frac{v}{2} = 1$$

جواب های نهایی $\rightarrow \boxed{\frac{v}{2}}$

(ب)

معادله: $a+b+c=0 \Rightarrow 2-5+3=0 \Rightarrow x=1$

معادله: $a+c=b \Rightarrow 2+3=5 \Rightarrow x=-1$

الف) $x=1$ و $x=\frac{3}{2}$

ب) $x=-1$ و $x=-\frac{3}{2}$

(الف)

(ب)

دلتا: $\Delta = b^2 - 4ac = 25 - 1 = 14 \Rightarrow x = \frac{-b \pm \sqrt{\Delta}}{2a} = \frac{-5 \pm \sqrt{14}}{2}$

ج) $\Delta = b^2 - 4ac \Rightarrow v^2 - 4 \times 4 \times 9 = -9$

د) $s = \frac{-b}{a} = \frac{3}{1} = 3$ و $p = \frac{c}{a} = \frac{-2}{1} = -2$

(ج)

(د)

$$s^2 - 2p = (3)^2 - 2 \times (-2) = 9 + 4 = 13$$

(الف)

$$s^3 - 3sp = (3)^3 - 3 \times 3 \times (-2) = 27 + 18 = 45$$

(ب)

$$\left(\frac{v}{\omega}\right) = \frac{v \times 4}{2} = 21 \text{ و } \left(\frac{9}{2}\right) = \frac{9 \times 1}{2} = 37 \Rightarrow$$

(الف)

$$21 + 37 = 58$$

$$\left(\frac{9}{2}\right) = \frac{9 \times 4 \times v}{2 \times 1} = 18 \text{ و } \left(\frac{1}{2}\right) = \frac{1 \times 4 \times v}{2 \times 1} = 21 \Rightarrow 18 - 21 = -3$$

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