

الف) $x^2 - 4x + 8 = 0 \xrightarrow{+1} x^2 - 4x + 9 = 1 \rightarrow$ (۱)

$(x-3)^2 = 1 \rightarrow x-3 = \pm 1 \rightarrow x = 4 \checkmark$
 $x = 2$

(۲)

ب) $x^2 + 12x + 7 = 0 \xrightarrow{+9} x^2 + 12x + 16 = 9 \rightarrow$

$(x+4)^2 = 9 \rightarrow x+4 = \pm 3 \rightarrow x = -1 \checkmark$
 $x = -7$

الف) $x^2 - 5x + 6 = 0 \rightarrow (x-2)(x-3) = 0 \rightarrow$ (۲)

$x = 2, x = 3 \checkmark$

(۲)

ب) $x^2 - 5x - 14 = 0 \rightarrow (x-7)(x+2) = 0 \rightarrow x = 7, x = -2 \checkmark$

الف) $x^2 - 3x - 4 = 0 \rightarrow \frac{3 \pm \sqrt{9+16}}{2} = \frac{3 \pm \sqrt{25}}{2} = \frac{3 \pm 5}{2}$ فرمول (۳)
 $= \frac{3+5}{2} = 4, \frac{3-5}{2} = -1$

ب) $2x^2 - 7x + \frac{1}{2} = 0 \rightarrow \frac{7 \pm \sqrt{49-4}}{4} = \frac{7 \pm \sqrt{45}}{4} \checkmark$

(۱۷۵)

الف) $x^2 - 3x + 2 = 0 \rightarrow a+b+c = 0 \rightarrow x = 1, x = \frac{c}{a} = 2$ (۴)

(۲)

ب) $4x^2 + 12x - 3 = 0 \rightarrow a+c = b \rightarrow x = -1, x = -\frac{c}{a} = \frac{3}{4} \checkmark$

الف) $5x^2 - 12x + 7 = 0 \rightarrow x^2 - 12x + 35 = 0 \rightarrow$ (۵)

$(x-7)(x-5) = 0 \rightarrow x = \frac{7}{5}, x = \frac{5}{5} = 1 \checkmark$

(۲)

ب) $3x^2 - 10x + 7 = 0 \rightarrow x^2 - 10x + 21 = 0 \rightarrow (x-3)(x-7) = 0 \rightarrow$
 $x = \frac{3}{3} = 1, x = \frac{7}{3} \checkmark$

$$\text{فرمول} = \frac{-b \pm \sqrt{b^2 - 4ac}}{2a}$$

الف) $3x^2 + 5x - 1 = 0 \rightarrow \frac{-5 \pm \sqrt{25 - 12}}{-6} = \frac{-5 \pm \sqrt{13}}{-6}$ (6)
 دو ریشه دارد $\Delta > 0$ سوال از یک آمار ریشه

ب) $2x^2 - x + 2 = 0 \rightarrow \frac{1 \pm \sqrt{1 - 16}}{4} = x \notin \mathbb{R}$ (1)
 ریشه ندارد $\Delta < 0$ دلتا منفی

ج) $2x^2 - 4x + 2 = 0 \rightarrow \frac{4 \pm \sqrt{16 - 16}}{4} = 0 \rightarrow x = 1$
 یک ریشه دارد $\Delta = 0$ دلتا منفی

د) $2x^2 - x + 1 = 0 \rightarrow \frac{1 \pm \sqrt{1 - 8}}{4} = x \notin \mathbb{R} \Rightarrow \Delta < 0$ ریشه ندارد $\Delta < 0$

الف) یعنی دلتا مثبت $2x^2 - 3x + a = 0 \rightarrow 9 - 12a > 0 \rightarrow \frac{9}{12} > a$ (7)

ب) یعنی دلتا صفر $2x^2 - 3x + a = 0 \rightarrow 9 - 12a = 0 \rightarrow 9 = 12a \rightarrow a = \frac{9}{12}$ (2)

ج) یعنی دلتا منفی $2x^2 - 3x + a = 0 \rightarrow 9 - 12a < 0 \rightarrow 9 < 12a \rightarrow \frac{9}{12} < a$

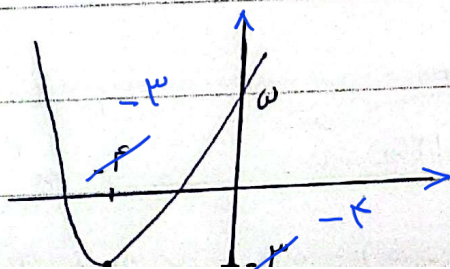
د) یعنی دلتا منفی نباشد $2x^2 - 3x + a = 0 \rightarrow 9 - 12a \geq 0 \rightarrow 9 \geq 12a \rightarrow \frac{9}{12} \geq a$

الف) $y = x^2 + 4x + 5 \rightarrow \frac{-b}{2a} = \frac{-4}{2} = -2 = x$ (1)

$y = 9 - 12 + 5 = -1$

$\begin{matrix} 1 \\ -4 \end{matrix} \quad \min$

ب)

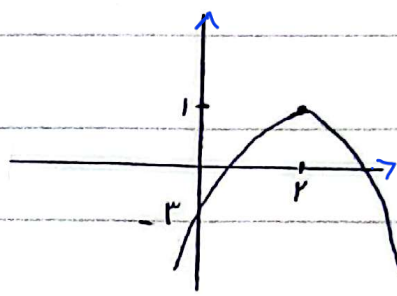


(1, 7, 5)

$$\text{الف) } y = -x^2 + 6x - 3 \rightarrow \frac{-b}{2a} = \frac{-6}{-2} = 3 = x \quad (9)$$

$$y = -x^2 + 6x - 3 = (1)$$

$$\text{Max} \mid \begin{matrix} 1 \\ 1 \end{matrix}$$



(2)

$$\text{ب) } 0 = -x^2 + 6x - 3 \rightarrow a, b, c = 0 \rightarrow x = 1, x = \frac{-3}{-1} = 3$$

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

$$p = \frac{c}{a} = -3$$

$$x^2 - 3x - 3 = 0$$

(10)

$$\text{الف) } s - p = 9 + 3 = 12$$



(2)

$$\text{ب) } 2V - (3)(3)(-3) = 2V + 27 = 60$$



♥ خسته نباشید