

الف) $x^2 - 6x + 11 = 0 \rightarrow x^2 - 6x + 9 - 1 = 0 \rightarrow (x-3)^2 = 1 \rightarrow x-3 = \pm 1$
 $\rightarrow \begin{cases} x = 4 \\ x = 2 \end{cases}$

۱

ب) $x^2 + 11x + 7 = 0 \rightarrow x^2 + 11x + 16 - 9 = 0 \rightarrow (x+4)^2 = 9 \rightarrow x+4 = \pm 9$
 $\begin{cases} x = 5 \\ x = -13 \end{cases}$

الف) $x^2 - 5x + 6 = 0 \rightarrow (x-2)(x-3) = 0 \rightarrow \begin{cases} x = 2 \\ x = 3 \end{cases}$

۲

ب) $x^2 - 5x - 14 = 0 \rightarrow (x+2)(x-7) = 0 \rightarrow \begin{cases} x = -2 \\ x = 7 \end{cases}$

الف) $x^2 - 3x - 5 = 0 \rightarrow x = \frac{3 \pm \sqrt{9+20}}{2} \Rightarrow \begin{cases} x = \frac{3 + \sqrt{29}}{2} \\ x = \frac{3 - \sqrt{29}}{2} \end{cases}$

۳

ب) $2x^2 - 4x + \frac{1}{2} = 0 \rightarrow x = \frac{4 \pm \sqrt{16-2}}{4} \Rightarrow \begin{cases} x = \frac{4 + \sqrt{14}}{4} \\ x = \frac{4 - \sqrt{14}}{4} \end{cases}$

الف) $x^2 - 3x + 2 = 0 \xrightarrow{\text{تجزیه مستقیم}} (x-1)(x-2) = 0 \rightarrow \begin{cases} x = 1 \\ x = 2 \end{cases}$

۴

ب) $4x^2 + x - 3 = 0 \xrightarrow{\text{روسی}} x^2 + x - 12 = 0 \rightarrow (x-3)(x+4) = 0 \rightarrow \begin{cases} x = 3 \\ x = -4 \end{cases}$

الف) $5x^2 - 12x + 7 = 0 \Rightarrow x^2 - 12x + 35 = 0 \rightarrow (x-7)(x-5) = 0 \rightarrow \begin{cases} x = \frac{7}{5} \\ x = 1 \end{cases}$

۵

ب) $3x^2 - 10x + 7 = 0 \Rightarrow x^2 - 10x + 21 = 0 \rightarrow (x-3)(x-7) = 0 \rightarrow \begin{cases} x = 1 \\ x = \frac{7}{3} \end{cases}$

$$\text{الف) } -3x^2 + \omega x - 1 = 0 \rightarrow x = \frac{-\omega \pm \sqrt{\omega^2 - 4}}{-6} \rightarrow \begin{cases} x_1 = \frac{-\omega + \sqrt{\omega^2 - 4}}{-6} \\ x_2 = \frac{-\omega - \sqrt{\omega^2 - 4}}{-6} \end{cases}$$

$$\text{ب) } 2x^2 - x + 2 = 0 \rightarrow x = \frac{1 \pm \sqrt{1 - 16}}{4} \quad \ominus \text{ جواب ندارد زیرا دایمال}$$

$$\text{ب) } 2x^2 - 4x + 2 = 0 \rightarrow x = \frac{4 \pm \sqrt{16 - 16}}{4} = \frac{4}{4} = 1 \quad \text{دو مضاعف دارد}$$

$$\text{ت) } 2x^2 - x + 1 = 0 \rightarrow x = \frac{1 \pm \sqrt{1 - 8}}{4} \quad \ominus \text{ جواب ندارد زیرا دایمال}$$

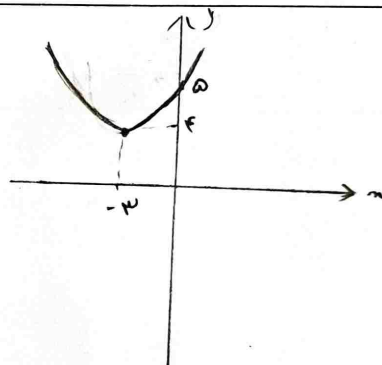
$$\text{الف) } x = \frac{3 \pm \sqrt{9 - 11a}}{4} \rightarrow a = 1$$

$$\text{ب) } x = \frac{3 \pm \sqrt{9 - 11a}}{4} \rightarrow a = \frac{9}{11}$$

$$\text{ج) } x = \frac{3 \pm \sqrt{9 - 11a}}{4} \rightarrow a = [2, +\infty) \quad x \geq 2$$

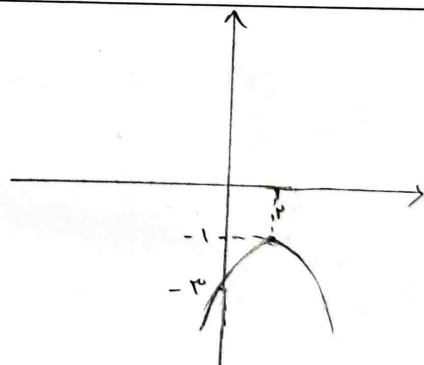
$$\text{د) } x = \frac{3 \pm \sqrt{9 - 11a}}{4} \rightarrow a = \{1\} \cup [0, -\infty)$$

$$\text{الف) } \text{مینیم دار} \quad \text{مختصات} = \begin{bmatrix} -3 \\ 4 \end{bmatrix}$$



ب)

$$\text{الف) } \text{ماکسیم دار} \quad \text{مختصات} = \begin{bmatrix} 2 \\ -1 \end{bmatrix}$$



محور x را قطع نمی کند

$$\text{الف) } S^2 - 2P = 4 - 6 = -2$$

$$\begin{aligned} x^2 - 3x - 2 &= 0 \\ S &= -2 \\ P &= -2 \end{aligned}$$

$$\text{ب) } S^3 - 3SP = -8 + 12 = 4$$