

$$\text{الف) } x^2 - 11x + 10 = 0 \Rightarrow (x-5)(x-2) = 0 \Rightarrow x=5, x=2$$

$$\text{ب) } x^2 + 5x - 14 = 0 \Rightarrow (x+7)(x-2) = 0 \Rightarrow x=-7, x=2$$

$$\text{الف) } \omega x^2 - 12x + 7 = 0 \Rightarrow x^2 - 12x + 7\omega = 0 \Rightarrow (x-7)(x-\omega) = 0$$

$$\Rightarrow x = \frac{7}{\omega}, x = \frac{\omega}{\omega} = 1$$

$$\text{ب) } x^2 - 10x + 16 = 0 \Rightarrow x^2 - 10x + 16 = 0 \Rightarrow (x-2)(x-8) = 0$$

$$x = \frac{16}{8} = 2, x = \frac{16}{2} = 8$$

$$\text{الف) } 2x^2 - 5x + 2 = 0 \Rightarrow \frac{5 \pm \sqrt{25-16}}{4} < \frac{5+1}{4} = \frac{3}{2} \quad \frac{-b \pm \sqrt{b^2-4ac}}{2a}$$

$$\text{ب) } 2x^2 + 5x + 2 = 0 \Rightarrow \frac{-5 \pm \sqrt{25-16}}{4} < \frac{-5+1}{4} = -1$$

$$\text{ج) } 2x^2 - 5x + 1 = 0 \Rightarrow \frac{5 \pm \sqrt{25-8}}{4} \Rightarrow \frac{5 \pm \sqrt{17}}{4}$$

$$\text{د) } 4x^2 + 7x + 9 = 0 \Rightarrow \frac{-7 \pm \sqrt{49-144}}{8} \Rightarrow \text{معادله جواب ندارد}$$

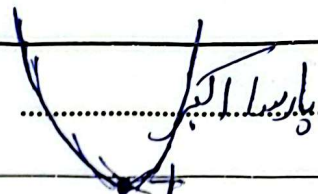
$$\text{الف) } 5 - 2P \Rightarrow (1-3-2) - 2(1 \times (-2) \times (-2)) \Rightarrow -5 + 12 = -1$$

$$\text{ب) } 5 - 3P \Rightarrow (-5) - 3(-5)(-6) = -25 - 12 = -37$$

$$\text{الف) } \binom{7}{5} + \binom{9}{2} \Rightarrow \frac{7!}{(7-5)!} \Rightarrow \frac{7 \times 6 \times 5 \times 4 \times 3 \times 2 \times 1}{2 \times 1} = 7 \times 6 \times 4 \times 3 = 2 \times 5 \times 7$$

$$\frac{4!}{(4-2)!} \Rightarrow \frac{4 \times 3 \times 2 \times 1}{2 \times 1} = 4 \times 3 = 12 \Rightarrow 2 \times 5 \times 7 + 12 = 2 \times 4 \times 7$$

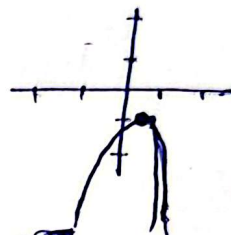
$$\text{ب) } \binom{9}{5} - \binom{11}{2} \Rightarrow \frac{9 \times 8 \times 7 \times 6 \times 5 \times 4 \times 3 \times 2 \times 1}{5!} - \frac{11 \times 10 \times 9 \times 8 \times 7 \times 6 \times 5 \times 4 \times 3 \times 2 \times 1}{2!} = 2016 - 504 = 1512$$



$$\min \left| \frac{-b}{2a} \right| \Rightarrow \min \left| \frac{0}{2} \right|$$



$$\max \left| \frac{-b}{2a} \right| \Rightarrow \max \left| \frac{0}{2} \right| = 0$$



هیچوقت محور ها را قطع نمی کند

اگر $\Delta > 0$ معادله ۲ جواب دارد. اگر $\Delta = 0$ معادله یک جواب دارد. اگر $\Delta < 0$ باشد معادله جواب ندارد.

$$a = \left(\frac{9}{\lambda}, -\infty \right)$$

$$\Delta = b^2 - 4ac \Rightarrow 9 - 18a$$

الف ←

$$a = \frac{9}{\lambda}$$

ب) ←

$$a = \left(\frac{9}{\lambda}, -\infty \right), \left[\frac{9}{\lambda}, +\infty \right)$$

$$a = \left(+\infty, \frac{9}{\lambda} \right)$$

ج) ←

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

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

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

$$\Rightarrow x = \pm \sqrt{\frac{5}{4}} + \frac{1}{2}$$

$$\text{الف) } x^2 - 2x - 1 = 0 \Rightarrow \frac{-b \pm \sqrt{b^2 - 4ac}}{2a} \Rightarrow \frac{2 \pm \sqrt{4 + 4}}{2} = \frac{2 \pm \sqrt{8}}{2} = \frac{2 \pm 2\sqrt{2}}{2} = 1 \pm \sqrt{2}$$

$$\text{ب) } x^2 + x - 6 = 0 \Rightarrow \frac{-1 \pm \sqrt{1 + 24}}{2} = \frac{-1 \pm \sqrt{25}}{2} = \frac{-1 \pm 5}{2} \Rightarrow \begin{cases} \frac{-1 + 5}{2} = 2 \\ \frac{-1 - 5}{2} = -3 \end{cases}$$