

$$\text{الف) } x^2 - 11x + 21 = 0 \Rightarrow (x-5)(x-7) = 0 \Rightarrow x=5, x=7$$

$$\text{ب) } x^2 + 5x - 21 = 0 \Rightarrow (x+7)(x-3) = 0 \Rightarrow x=-7, x=3$$

$$\text{الف) } \omega x^2 - 12x + 7 = 0 \Rightarrow x^2 - 12x + 5\omega = 0 \Rightarrow (x-5)(x-1) = 0$$

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

$$\text{ب) } x^2 - 10x + 21 = 0 \Rightarrow x^2 - 10x + 21 = 0 \Rightarrow (x-3)(x-7) = 0$$

$$\Rightarrow x = \frac{21}{7} = 3, x = \frac{7}{3}$$

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

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

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

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

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

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

$$S_2 = \frac{-b}{a} = 2 + 3 \quad \text{الف) } 9 + 5 = 14$$

$$P_2 = \frac{c}{a} = -4 \quad \text{ب) } 12 + 11 = 23$$

$$\text{الف) } \binom{7}{5} + \binom{9}{2} \Rightarrow \frac{7!}{(7-5)!5!} = \frac{7 \times 6 \times 5 \times 4 \times 3 \times 2 \times 1}{2 \times 1 \times 5 \times 1} = 14$$

$$\frac{4!}{(4-2)!} \Rightarrow \frac{4 \times 3 \times 2 \times 1}{2 \times 1 \times 2!} = 6 \Rightarrow 14 + 6 = 20$$

$$\text{ب) } \binom{9}{5} - \binom{11}{2} \Rightarrow \frac{9 \times 8 \times 7 \times 6 \times 5!}{5! \times 4!} - \frac{11 \times 10 \times 9!}{2! \times 9!} = 84 - 55 = 29$$

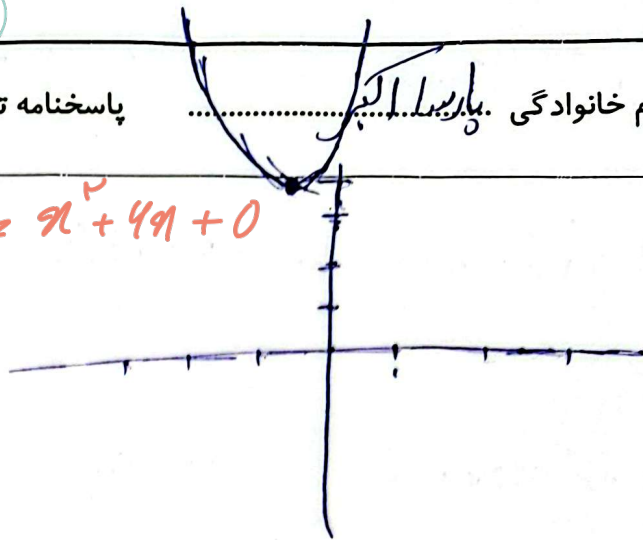
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$$\min \left| \frac{-b}{2a} \right| \Rightarrow \min \left| \frac{\frac{3}{2}}{1} \right|$$

$$\min \left| \begin{array}{c} -3 \\ -6 \end{array} \right|$$

$$y = x^2 + 4x + 0$$



$$\max \left| \frac{-b}{2a} \right| \Rightarrow \max \left| \frac{\frac{3}{2}}{-1} \right|$$

= 3

$$-(x^2 - 4x + 3) = 0$$

$$-(x-1)(x-3) = 0$$

$$x = 1, 3$$

$$y = -x^2 + 4x - 3$$

$$\max \left| \begin{array}{c} 2 \\ 1 \end{array} \right|$$



هیچوقت محور ها را قطع نمی کند

اگر  $\Delta > 0$  معادله 2 جواب دارد. اگر  $\Delta = 0$  معادله یک جواب دارد. اگر  $\Delta < 0$  باشد معادله جواب ندارد.

$$\Delta = b^2 - 4ac \Rightarrow 9 - 12a$$

$$a = \left( \frac{3}{4}, -\infty \right)$$

الف

$$a = \frac{3}{4}$$

ب

$$a = \left( +\infty, \frac{3}{4} \right)$$

ج

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

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

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

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

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

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