

الف) $x^2 - 4x + 8 = 0 \rightarrow x^2 - 4x + 9 = 1 \rightarrow (x-2)^2 = 1 \rightarrow x-2 = \pm 1$ ۵/۵

ب) $x^2 + 11x + 14 = 0$
 $x^2 + 11x + 14 = -14 + 14$
 $(x+5)^2 = 9 \rightarrow x+5 = \pm 3$
 $x+5 = 3 \rightarrow x = -2$
 $x+5 = -3 \rightarrow x = -8$

ج) $x^2 - 4x + 8 = 0$
 $x^2 - 4x + 9 = -1 + 9$
 $(x-2)^2 = 1 \rightarrow x-2 = \pm 1$
 $x-2 = 1 \rightarrow x = 3$
 $x-2 = -1 \rightarrow x = 1$

الف) $x^2 - 5x + 4 = 0$
 $(x-1)(x-4) = 0$

ب) $x^2 - 5x - 14 = 0$
 $(x-7)(x+2) = 0$

الف) $x^2 - 3x - 5 = 0$
 $\Delta = b^2 - 4ac = 9 + 20 = 29$
 $x = \frac{-b \pm \sqrt{\Delta}}{2a} = \frac{3 \pm \sqrt{29}}{2}$

ب) $2x^2 - 4x + \frac{1}{2} = 0$
 $\Delta = 16 - 2 = 14$
 $x = \frac{-b \pm \sqrt{\Delta}}{2a} = \frac{2 \pm \sqrt{14}}{4}$

الف) $2x^2 - 3x + 1 = 0$
 $(2x-1)(x-1) = 0$

ب) $4x^2 + 11x - 3 = 0$
 $(4x-1)(x+3) = 0$

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

ب) $3x^2 - 10x + 7 = 0$
 $x^2 - 10x + 21 = 0$
 $(x-3)(x-7) = 0$

$$-b' + \sqrt{\Delta} > b' - \epsilon ac$$

$$1.4100$$

$$\Delta = 0 \quad \Delta < 0$$

$$الف) -x^2 + 5x - 1 = 0$$

$$b^2 - 4ac \rightarrow 25 - 12 = 13$$

دو جواب دارد

$$ب) 2x^2 - x + 1 = 0$$

$$1 - 16 = -15$$

جواب ندارد

$$پ) 2x^2 - 4x + 2 = 0$$

$$16 - 16 = 0$$

$$ت) 2x^2 - x + 1 = 0$$

$$1 - 8 = -7$$

جواب ندارد

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

$$b^2 - 4ac$$

$$الف) 9 - 4(2)(a) > 0$$

$$a < \frac{9}{8}$$

$$ب) 9 - 4(2)(a) = 0$$

$$a = \frac{9}{8}$$

$$ج) 9 - 4(2)(a) < 0$$

$$a > \frac{9}{8}$$

$$د) a \leq \frac{9}{8}$$

$$y = x^2 + 4x + 5$$

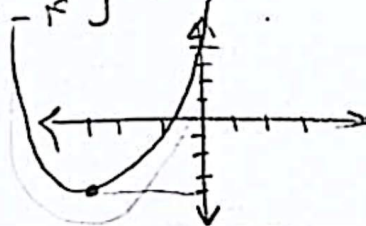
$$-\frac{\Delta}{4a}$$

$$-\frac{b}{2a}$$

$$x = -\frac{4}{2} = -2$$

$$y = \frac{16 - 16}{4} = -2$$

$$\begin{cases} x = -2 \\ y = -2 \end{cases} \rightarrow \min$$



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

$$-\frac{\Delta}{4a}$$

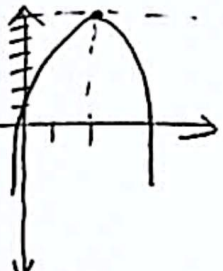
$$-\frac{b}{2a}$$

$$-\frac{c}{a}$$

$$-\frac{16 - 16}{-2} = 2$$

$$x = 2$$

$$y = 2$$



$$x_{ext} = -\frac{b}{2a} = 2$$

$$y_{ext} = 2$$

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

$$x = 2$$

$$x = 2$$



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

$$S = 3$$

$$P = -2$$

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

$$الف) S^2 - 2P$$

$$\left(-\frac{3}{1}\right)^2 - 2\left(-\frac{2}{1}\right) = 13$$

$$\frac{-9 - \sqrt{9 + 4}}{2}$$

$$ب) S^2 - 2P$$

$$\left(-\frac{3}{1}\right)^2 - 2\left(-\frac{2}{1}\right) = 13$$

$$\frac{-9 + \sqrt{9 + 4}}{2}$$

$$S \rightarrow \text{مجموعه}$$

$$P \rightarrow \text{ضرب}$$

$$0$$