

الف) $x^2 - 6x + 8 = 0 \rightarrow x^2 - 6x + 9 - 9 + 8 = 0 \rightarrow (x-3)^2 - 1 = 0 \rightarrow (x-3+1)(x-3-1) = 0 \rightarrow (x-2)(x-4) = 0$

ب) $x^2 + 8x + 7 = 0 \rightarrow x^2 + 8x + 16 - 16 + 7 = 0 \rightarrow (x+4)^2 - 9 = 0 \rightarrow (x+4+3)(x+4-3) = 0 \rightarrow (x+7)(x+1) = 0$

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

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

الف) $x^2 - 5x - 14 = 0 \rightarrow x = \frac{-b \pm \sqrt{b^2 - 4ac}}{2a} = \frac{5 \pm \sqrt{25 + 92}}{2} = \frac{5 \pm \sqrt{117}}{2}$

ب) $2x^2 - 8x + \frac{1}{2} = 0 \rightarrow x = \frac{-b \pm \sqrt{b^2 - 4ac}}{2a} = \frac{4 \pm \sqrt{16 - 2}}{4} = \frac{4 \pm \sqrt{14}}{4} = 1 \pm \frac{\sqrt{14}}{2}$

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

ب) $4x^2 + 7x - 2 = 0 \rightarrow x = \frac{-b \pm \sqrt{b^2 - 4ac}}{2a} = \frac{-7 \pm \sqrt{49 + 64}}{8} = \frac{-7 \pm \sqrt{113}}{8}$

الف) $x^2 - 12x + 27 = 0 \rightarrow x^2 - 12x + 36 - 9 = 0 \rightarrow (x-6)^2 - 9 = 0 \rightarrow (x-6+3)(x-6-3) = 0 \rightarrow (x-3)(x-9) = 0$

ب) $x^2 - 10x + 21 = 0 \rightarrow x^2 - 10x + 25 - 4 = 0 \rightarrow (x-5)^2 - 4 = 0 \rightarrow (x-5+2)(x-5-2) = 0 \rightarrow (x-3)(x-7) = 0$

$$1) -x^2 + 5x - 1 = 0$$

$$x = \frac{-b \pm \sqrt{b^2 - 4ac}}{2a} = \frac{-5 \pm \sqrt{25 - 4}}{-2} = \frac{-5 \pm \sqrt{21}}{-2}$$

$$2) x^2 - x + 1 = 0$$

$$x = \frac{1 \pm \sqrt{1 - 4}}{2} = \frac{1 \pm \sqrt{-3}}{2}$$

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$$3) x^2 - 4x + 1 = 0 \rightarrow x = \frac{4 \pm \sqrt{16 - 4}}{2} = \frac{4 \pm \sqrt{12}}{2} = 2 \pm \sqrt{3}$$

$$4) x^2 - x + 1 = 0 \rightarrow x = \frac{1 \pm \sqrt{1 - 4}}{2} = \frac{1 \pm \sqrt{-3}}{2}$$

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$$5) x^2 - 2x + 1 = 0 \rightarrow x = \frac{2 \pm \sqrt{4 - 4}}{2} = \frac{2 \pm 0}{2} = 1$$

$$\begin{aligned} 8a < 9 &\rightarrow a < \frac{9}{8} \\ 9 = 8a &\rightarrow a = \frac{9}{8} \\ 8a > 9 &\rightarrow a > \frac{9}{8} \\ 8a \leq 9 &\rightarrow a \leq \frac{9}{8} \end{aligned}$$

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$$y = x^2 + 4x + 5 = 0$$

$$\text{ext} = \left[\begin{matrix} x \\ y \end{matrix} \right] \rightarrow \frac{y}{x} = -\frac{4}{1} = -4 \rightarrow -4 + 5 = 1 \rightarrow \text{ext} = \begin{matrix} -4 \\ 1 \end{matrix}$$

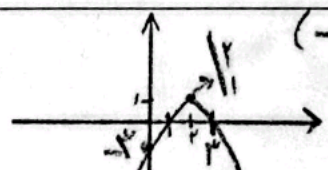


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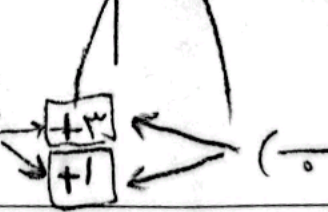
$$y = -x^2 + 4x - 1$$

$$\text{max} = \left[\begin{matrix} x \\ y \end{matrix} \right] \rightarrow \frac{y}{x} = \frac{4}{-1} = -4 \rightarrow -4 - 1 = -5 \rightarrow \text{max} = \begin{matrix} 2 \\ 1 \end{matrix}$$

$$\text{max} = \begin{matrix} 2 \\ 1 \end{matrix}$$



$$y = -x^2 + 4x - 1 \Rightarrow x = \frac{-b \pm \sqrt{b^2 - 4ac}}{2a} = \frac{-4 \pm \sqrt{16 - 4}}{-2} = \frac{-4 \pm \sqrt{12}}{-2} = 2 \pm \sqrt{3}$$



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

$$S = \frac{-b}{a} = \frac{3}{1} = 3 \quad P = \frac{c}{a} = \frac{-1}{1} = -1$$

$$1) S - 2P = 3 + 2 = 5$$

$$2) S - 2P = 3 + 2 = 5$$