

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

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

الف) $x^2 - 5x + 4 = (x-3)(x-2) = 0$
 $x = 2, 3$

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

الف) $x^2 - 5x - 2 = 0 \rightarrow x = \frac{-b \pm \sqrt{b^2 - 4ac}}{2a} = \frac{5 \pm \sqrt{25 + 20}}{2} = \frac{5 \pm \sqrt{45}}{2}$
 $x = \frac{5 + \sqrt{45}}{2}, \frac{5 - \sqrt{45}}{2}$

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

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

ب) $4x^2 + 7x - 3 = 0 \rightarrow x = \frac{-b \pm \sqrt{b^2 - 4ac}}{2a} = \frac{-7 \pm \sqrt{49 + 48}}{8} = \frac{-7 \pm \sqrt{97}}{8}$
 $x = \frac{-7 + \sqrt{97}}{8}, \frac{-7 - \sqrt{97}}{8}$

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

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

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

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

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

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

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

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

الف)
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$$y = x^2 + 4x + 5 = 0$$

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

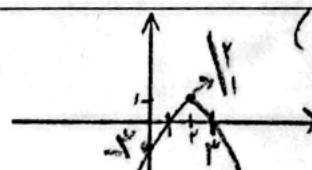


الف)
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$$y = -x^2 + 4x - 1$$

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

$$\text{max} = \begin{bmatrix} 1 \\ 1 \end{bmatrix}$$



الف)

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



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

$$s = \frac{-b}{a} = \frac{3}{1} = 3 \quad p = \frac{c}{a} = \frac{-1}{1} = -1$$

$$1) s - 2p = 3 + 2 = 5$$

$$2) s - 2sp = 3 + 18 = 21$$