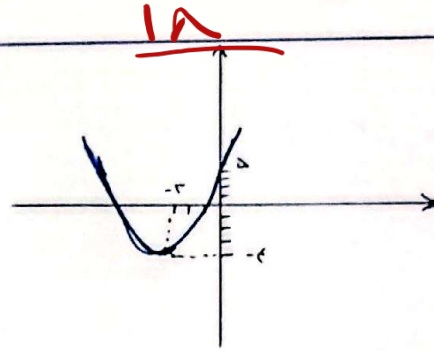


$$y = x^2 + 4x + 5$$

$$\Delta = 16 - 20 = -4$$

$$\text{Min} \begin{cases} \frac{-b}{2a} & \frac{-4}{2} = -2 \\ \frac{-\Delta}{4a} & \frac{-(-4)}{4} = 1 \end{cases}$$



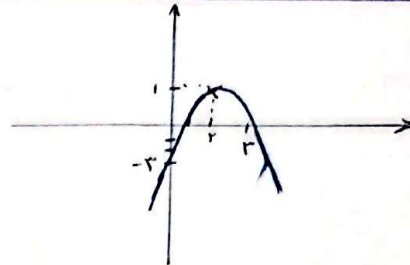
$$\left[\begin{matrix} -2 \\ 1 \end{matrix} \right] \text{ الف (۱)}$$

(۲)

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

$$\Delta = 16 - 20 = -4$$

$$\text{Max} \begin{cases} \frac{-b}{2a} & \frac{-4}{-2} = 2 \\ \frac{-\Delta}{4a} & \frac{-(-4)}{-4} = -1 \end{cases}$$



$$\left[\begin{matrix} 2 \\ -1 \end{matrix} \right] \text{ الف (۲)}$$

(۳)

$$\left[\begin{matrix} 2 \\ -1 \end{matrix} \right], \left[\begin{matrix} 1 \\ 1 \end{matrix} \right] \text{ الف (۳)}$$

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

$$\Delta = 9 - 8a$$

$$a \geq \frac{9}{8} \text{ (د)} \quad a > \frac{9}{8} \text{ (ج)} \quad a = \frac{9}{8} \text{ (ب)} \quad a < \frac{9}{8} \text{ الف (۴)}$$

(۵)

$$\text{الف (۱)} \quad x^2 - 2x - 1 = 0 \rightarrow x^2 - 2x + 1 = 2 \quad (x-1)^2 = 2 \quad \pm\sqrt{x-1} = \sqrt{2} \quad \begin{cases} x = 1 - \sqrt{2} \\ x = 1 + \sqrt{2} \end{cases} \text{ الف (۴)}$$

$$\text{ب (۲)} \quad x^2 - x - 1 = 0 \rightarrow x^2 - 2x + 1 = 2 \quad (x-1)^2 = 2 \quad x = \begin{cases} 1 + \sqrt{2} + x \\ 1 - \sqrt{2} + x \end{cases} \text{ ب (۵)}$$

$$\text{الف (۱)} \quad x^2 - 2x - 1 = 0 \quad \Delta = 4 - (-4) = 8 \quad x = \frac{2 \pm \sqrt{8}}{2} = \begin{cases} 1 + \sqrt{2} \\ 1 - \sqrt{2} \end{cases} \text{ الف (۴)}$$

$$\text{ب (۲)} \quad x^2 + x - 4 = 0 \quad \Delta = 1 - (-16) = 17 \quad x = \frac{-1 \pm \sqrt{17}}{2} \text{ ب (۵)}$$

(۶) با ارضاق

$$\text{الف (۱)} \quad x^2 - 11x + 28 = 0 \quad (x-7)(x-4) \rightarrow x=7, x=4 \text{ الف (۴)}$$

$$\text{ب (۲)} \quad x^2 + 3x - 28 = 0 \quad (x+7)(x-4) \rightarrow x=-7, x=4 \text{ ب (۵)}$$

$$\text{الف (۱)} \quad 5x^2 - 11x + 7 = 0 \quad x^2 - 12x + 21 = 0 \quad (x-7)(x-3) \quad x = \frac{7}{5} \quad x = \frac{3}{5} = 1 \text{ الف (۴)}$$

$$\text{ب (۲)} \quad 3x^2 - 10x + 7 = 0 \quad x^2 - 10x + 21 = 0 \quad (x-7)(x-3) \quad x = \frac{7}{3} \quad x = \frac{3}{3} = 1 \text{ ب (۵)}$$

الف) $2x^2 - 5x + 3 = 0$

$a + b + c = 0$

$x = 1$

$2 - 5 + 3 = 0$

$x = 1$

$x = \frac{c}{a}$

$x = \frac{r}{r}$

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ب) $2x^2 + 5x + 3 = 0$

$a + c = b$

$x = -1$

$2 + 3 = 5$

$x = -1$

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

$x = \frac{-r}{r}$

ج) $2x^2 - 5x + 1 = 0$

$\Delta = b^2 - 4ac$

$x = \frac{5 \pm \sqrt{17}}{4}$

$\Delta = 25 - 4 = 17$

د) $4x^2 + 7x + 9 = 0$

$\Delta = 49 - (4 \times 9) = -9 < 0 \rightarrow x$

الف) $5^2 - 2P = 3^2 - 2(-2) = 9 - (-4) = 13$

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

$S = \frac{r}{1} = 3$

$P = \frac{-r}{1} = -2$

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ب) $5^2 - 3SP = 3^2 - 3(3)(-2) = 9 - (-18) = 27$

الف) $\begin{pmatrix} 7 \\ 5 \end{pmatrix} + \begin{pmatrix} 9 \\ 2 \end{pmatrix} = \frac{7 \times 9}{1 \times 1} = 21 + \frac{9 \times 2}{1 \times 1} = 39 = 27 \leftarrow (21 + 39)$

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ب) $\begin{pmatrix} 9 \\ 3 \end{pmatrix} - \begin{pmatrix} 1 \\ 2 \end{pmatrix} = \frac{9 \times 1}{1 \times 1} = 9 - \frac{1 \times 2}{1 \times 1} = 7 = 27 \leftarrow (9 - 2)$