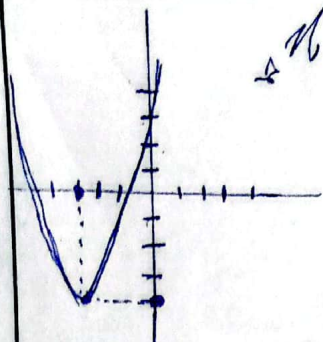


$$y = x^2 + 6x + 5$$

$$x = -3 = \frac{-b}{2a}$$

Min

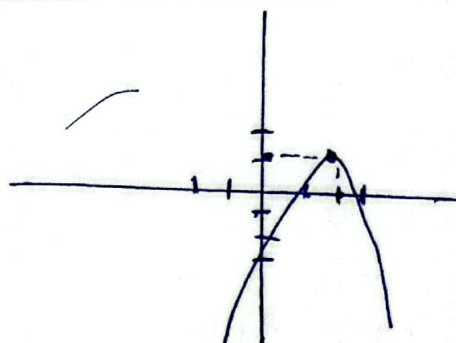
$$y = 9 - 18 + 5 = -4 \text{ جایزگی}$$



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

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

$$-4 + 8 - 3 = 1 = y$$



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

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

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

$$\begin{cases} x=1 \\ x=3 \end{cases}$$

$$a < \frac{9}{\lambda} \leftarrow 9 - \lambda a > 0 \quad \Delta = 9 - \lambda a \quad \Delta > 0 \quad \Delta = b^2 - 4ac \text{ (الف)}$$

$$a = \frac{9}{\lambda} \leftarrow 9 - \lambda a = 0$$

$$a > \frac{9}{\lambda} \leftarrow 9 - \lambda a < 0$$

شرط دوریه
ب) شرط یک ریشه مضاعف $\Delta = 0$
ج) بدون ریشه حقیقی $\Delta < 0$

$$\frac{3}{2} \rightarrow x(2x-3) = 0 \quad 2x^2 - 3x = 0 \leftarrow a = 0 \quad 2(0)^2 - 3(0) + a = 0 \text{ (د)}$$

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

$$\begin{cases} 1 + \sqrt{2} \\ 1 - \sqrt{2} \end{cases}$$

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

$$\rightarrow \frac{1 + \sqrt{2}}{1} \leftarrow$$

$$\rightarrow \frac{1 - \sqrt{2}}{1} \leftarrow$$

$$\frac{-1 + \sqrt{14}}{2}$$

$$\frac{-1 - \sqrt{14}}{2}$$

$$\text{ب) } x^2 + x - 4 \rightarrow \Delta = 1 + 16 = 17, \frac{-1 \pm \sqrt{17}}{2}$$

الف) $x^2 - 11x + 28 = 0 \rightarrow (x-4)(x-7) = 0$ $\begin{cases} x=4 \\ x=7 \end{cases}$
 ب) $x^2 + 3x - 28 = 0 \rightarrow (x-4)(x+7) = 0$ $\begin{cases} x=4 \\ x=-7 \end{cases}$

الف) $x^2 - 12x + 35 = 0 \rightarrow (x-5)(x-7) = 0$ $\begin{cases} x=5 \\ x=7 \end{cases}$
 ب) $3x^2 - 10x + 7 = 0 \rightarrow (x-3)(x-7) = 0$ $\begin{cases} x=3 \\ x=7 \end{cases}$

الف) $2x^2 - 5x + 3 = 0$ $\Delta = 25 - 24 = 1$ $\frac{5 \pm 1}{4}$ $\begin{cases} x = \frac{3}{2} \\ x = 1 \end{cases}$
 ب) $2x^2 + 5x + 3 = 0$ $\Delta = 25 - 24 = 1$ $\frac{-5 \pm 1}{4}$ $\begin{cases} x = -1 \\ x = -\frac{3}{2} \end{cases}$
 ج) $2x^2 - 5x + 1 = 0$ $\Delta = 25 - 8 = 17$ $\frac{5 \pm \sqrt{17}}{4}$ $\begin{cases} x = \frac{5 + \sqrt{17}}{4} \\ x = \frac{5 - \sqrt{17}}{4} \end{cases}$
 د) $4x^2 + 7x + 9 = 0$ $\Delta = 49 - 144 = -95$ $\Delta < 0$ ریشه ندارد

$S^2 - 2P \rightarrow 9 + 4 = 13$

$S^3 - 3SP \rightarrow 27 + 18 = 45$

ضرب ریشه $= \frac{c}{a} = -2$
 جمع ریشه $= \frac{-b}{a} = 3$

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

الف) $\begin{pmatrix} 7 \\ 5 \end{pmatrix} + \begin{pmatrix} 9 \\ 2 \end{pmatrix} = \begin{pmatrix} 16 \\ 7 \end{pmatrix}$

ب) $\begin{pmatrix} 9 \\ 3 \end{pmatrix} - \begin{pmatrix} 1 \\ 2 \end{pmatrix} = \begin{pmatrix} 8 \\ 1 \end{pmatrix}$