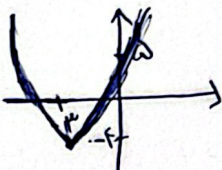
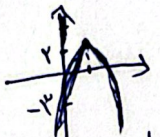


$y = m^2 + 4m + 2$ ext $\left| \begin{array}{l} -\frac{b}{2a} \\ -\frac{\Delta}{4a} \end{array} \right.$ Min $\rightarrow a > 0$ $-\frac{4}{2} = -2$
 $\Delta = b^2 - 4ac$
 $16 - 4 \times 1 \times 2$
 $16 - 8 = 8$
 $\frac{-14}{2} = -7$



$y = -m^2 + 6m - 3$ ext $\left| \begin{array}{l} -\frac{b}{2a} \\ -\frac{\Delta}{4a} \end{array} \right.$ $\frac{-6}{-2} = 3$
 $a < 0 \rightarrow \text{Max}$
 $\Delta = b^2 - 4ac \rightarrow 36 - 4 \times 1 \times -3$
 $36 - 12 = 24$
 $\frac{-6}{-2} = 3$
 $(m-1)(m-3) = 0$ $m=1, m=3$



الف) $\Delta > 0 \Rightarrow b^2 - 4ac \rightarrow 9 - 4 \times 1 \times c > 0$
 $9 - 4c > 0 \rightarrow \frac{9}{4} > c$
 ب) $\Delta = 0 \Rightarrow b^2 - 4ac \rightarrow 9 - 4 \times 1 \times c = 0$
 $9 - 4c = 0 \rightarrow c = \frac{9}{4}$
 ج) $\Delta < 0 \Rightarrow b^2 - 4ac \rightarrow 9 - 4 \times 1 \times c < 0 \rightarrow 9 - 4c < 0 \rightarrow 9 < 4c \rightarrow \frac{9}{4} < c$
 د) $\Delta \geq 0 \Rightarrow b^2 - 4ac \rightarrow 9 - 4 \times 1 \times c \geq 0 \rightarrow 9 \geq 4c \rightarrow \frac{9}{4} \geq c$

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

ب) $m^2 - m - 1 = 0 \rightarrow (m - \frac{1}{2})^2 = 1 + \frac{1}{4} \rightarrow m - \frac{1}{2} = \pm\sqrt{1 + \frac{1}{4}}$
 $m = +\sqrt{1 + \frac{1}{4}} + \frac{1}{2}, m = -\sqrt{1 + \frac{1}{4}} + \frac{1}{2}$

الف) $m^2 - 2m - 1 = 0$ $\frac{-b \pm \sqrt{\Delta}}{2a}$ $\frac{-(-2) \pm \sqrt{4}}{2} = \frac{2 \pm 2}{2}$ $\frac{-(-2) - \sqrt{4}}{2}$
 $\Delta = b^2 - 4ac$ $4 - 4 \times 1 \times -1 = 8$ $\frac{2 - 2}{2} = 0$
 $1 - 1 \times 1 \times -1 = 1$
 ب) $m^2 + m - 1 = 0$ $\frac{-1 \pm \sqrt{5}}{2}$ $\frac{-1 - \sqrt{5}}{2}$
 $\Delta = b^2 - 4ac$ $1 - 4 \times 1 \times -1 = 5$ $\frac{-b \pm \sqrt{\Delta}}{2a}$

$$\text{الف) } m^2 - 11m + 28 = 0 \rightarrow (m-4)(m-7) \rightarrow \boxed{m=4}, \boxed{m=7}$$

$$\text{ب) } m^2 + 3m - 28 = 0 \rightarrow (m+7)(m-4) \rightarrow \boxed{m=-7}, \boxed{m=4}$$

$$\text{الف) } \Delta m^2 - 12m + 7 = 0 \rightarrow m^2 - 12m + 3\Delta = 0 \rightarrow (m-7)(m-\Delta) \\ V, \Delta \Rightarrow \frac{V}{\Delta}, \frac{\Delta}{\Delta} = 1$$

$$\text{ب) } 3m^2 - 10m + 7 = 0 \rightarrow m^2 - 10m + 21 = 0 \rightarrow (m-7)(m-3) \\ V, 3 \\ \frac{V}{3}, \frac{3}{3} = 1$$

$$\text{الف) } 2m^2 - 5m + 3 = 0 \rightarrow m^2 - 5m + 4 = 0 \rightarrow (m-2)(m-3) \rightarrow \frac{2}{3} = 1$$

$$\text{ب) } 2m^2 + 5m + 3 = 0 \rightarrow \Delta = b^2 - 4ac, \frac{-b \pm \sqrt{\Delta}}{2a} \Rightarrow \Delta = 25 - 24 = 1 \rightarrow \frac{-5 \pm 1}{4} = -1$$

$$\text{ج) } 2m^2 - 5m + 1 = 0$$

$$\Delta = b^2 - 4ac \rightarrow 25 - 4 = 21$$

$$\text{د) } 2m^2 + 5m + 9 = 0 \rightarrow \Delta = 25 - 72 = -47 \\ \Delta = b^2 - 4ac = 25 - 72 = -47 \\ \frac{-b \pm \sqrt{\Delta}}{2a} \rightarrow \frac{-5 \pm \sqrt{-47}}{4}$$

$$m^2 - 3m - 2 = 0$$

$$S = -\frac{b}{a} = -(-3) = 3, P = \frac{c}{a} = -2$$

$$S = -\frac{b}{a}, P = \frac{c}{a}$$

$$\text{الف) } S^2 - 2P = 9 - 2(-2) = 13$$

$$\text{ب) } S^3 - 3SP = 27 - 3 \times 3 \times (-2) = 45$$

$$\text{الف) } \begin{pmatrix} V \\ \Delta \end{pmatrix} + \begin{pmatrix} 9 \\ 2 \end{pmatrix} = \begin{pmatrix} 14 \\ 11 \end{pmatrix} \rightarrow \begin{pmatrix} V \\ \Delta \end{pmatrix} = \begin{pmatrix} 5 \\ 9 \end{pmatrix} \\ 34 + 21 = 55 \rightarrow \frac{55}{5} = 11 \\ 9 \times 1 = 9$$

$$\text{ب) } \begin{pmatrix} 9 \\ 2 \end{pmatrix} - \begin{pmatrix} 1 \\ 2 \end{pmatrix} = \begin{pmatrix} 8 \\ 0 \end{pmatrix}$$

$$\frac{8 \times 1}{1 \times 1} = 8$$

$$\frac{8 \times 1}{1} = 8$$

$$11 - 21 = -10$$