

$$\text{الف) } n^2 - 4n + 1 = -1 \Rightarrow \frac{(n^2 - 4n + 9) - 1}{(n-2)^2} = 0 \quad \frac{(n-2)^2}{n-4} = 1$$

$$\text{ب) } n^2 + 14n + 1 = 0 \Rightarrow (n^2 + 14n + 49) - 48 = 0 \\ (n+7)^2 = 48 \\ n = -7 \pm \sqrt{48}$$

$$\text{الف) } n^2 - 4n + 1 = 0 \quad (n-2) \times (n-4) = 0 \quad n < \frac{2}{4}$$

$$\text{ب) } n^2 - 4n - 1 = 0 \quad (n-5)(n+1) = 0 \quad n < \frac{5}{-1}$$

$$\text{الف) } n^2 - 2n - 3 = 0 \\ a=1 \quad b=-2 \quad c=-3$$

$$\frac{2 \pm \sqrt{4+12}}{2} = \frac{2 \pm \sqrt{16}}{2} = \frac{2 \pm 4}{2} \\ n < \frac{2+4}{2} = 3 \\ n < \frac{2-4}{2} = -1$$

$$\text{ب) } 2n^2 - 5n + \frac{1}{2} = 0$$

$$\frac{5 \pm \sqrt{25-4}}{4} = \frac{5 \pm \sqrt{21}}{4} \\ n < \frac{5+\sqrt{21}}{4} \\ n < \frac{5-\sqrt{21}}{4}$$

$$\text{الف) } n^2 - 2n + 2 = 0 \quad (n-1)(n-2) = 0 \quad n < \frac{1}{2}$$

$$\text{ب) } 4n^2 + n - 2 = 0$$

$$\frac{-1 \pm \sqrt{1+32}}{8} = \frac{-1 \pm \sqrt{33}}{8} \\ n < \frac{-1+\sqrt{33}}{8} \\ n < \frac{-1-\sqrt{33}}{8}$$

$$\text{الف) } 5n^2 - 12n + 7 = 0 \quad n^2 - 12n + 35 = 0 \quad (n-5)(n-7) = 0 \\ (n-1)(5n-7) = 0 \\ n = 1, \frac{7}{5}$$

$$\text{ب) } 2n^2 - 10n + 12 = 0 \Rightarrow n^2 - 5n + 6 = 0$$

$$(n-2)(n-3) = 0 \quad (n-1)(3n-6) = 0 \quad n < \frac{1}{3}$$

$$\text{الف) } -2m^2 + 2m + 1 = 0$$

$$-2 \pm \sqrt{20 + 12} = \frac{m = \frac{-2 \pm \sqrt{32}}{-4}}{1} \Rightarrow \frac{-1 \pm \sqrt{2}}{2}$$

$$\Rightarrow 2m^2 - m + 1 = 0$$

$$\frac{1 \pm \sqrt{1 + 12}}{4} = 0 \quad \frac{1 + \sqrt{13}}{4} \Rightarrow \frac{1}{2} \pm \frac{\sqrt{13}}{4}$$

$$\text{ج) } \frac{1 \pm \sqrt{1 + 12}}{4} = 0$$

$$\frac{1 \pm \sqrt{13}}{4} \Rightarrow m = \frac{1 + \sqrt{13}}{4} \Rightarrow \frac{1}{2} \pm \frac{\sqrt{13}}{4}$$

$$\text{د) } \frac{1 \pm \sqrt{1 + 12}}{4} = 0$$

$$m = 1 \Rightarrow \frac{1}{2} \pm \frac{\sqrt{13}}{4}$$

$$m^2 - 2m + 1 = 0 \Rightarrow (m-1)^2 = 0 \Rightarrow m = 1 \Rightarrow a < 1, 12a$$

$$\Delta = 9 - 4a \quad 9 < 4a \Rightarrow a > \frac{9}{4} \Rightarrow a < 1, 12a$$

$$\Delta = 9 - 4a$$

$$4 < 4a$$

$$a = 1, 12a$$

$$a > 1, 12a$$

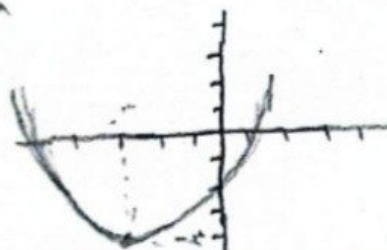
$$a \leq 1, 12a$$

$$\min = \frac{b^2 - 4ac}{4a}$$

$$m = -\frac{b}{2a}$$

$$m = \frac{1}{2} \Rightarrow y = 9 - 12a = -4 \Rightarrow \min = \left\{ \begin{matrix} -4 \\ 1 \end{matrix} \right\}$$

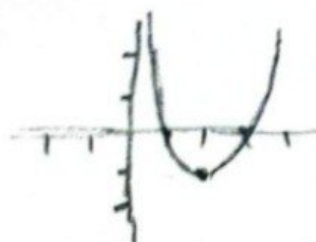
$$\text{الف) } \min$$



$$\{1\}, \{0\}$$

$$\{1\}$$

$$\frac{-b}{2a} \Rightarrow \frac{-1}{-2} = \frac{1}{2} \Rightarrow -1 + 12a = 1 \Rightarrow \max = \left\{ \begin{matrix} 1 \\ 1 \end{matrix} \right\} \Rightarrow \max$$



$$0 = -m^2 + 12m \Rightarrow m < 1$$

$$\{1\}, \{1\}$$

$$m^2 - 2m + 1 = 0 \quad S = -2 \quad P = -1$$

$$\text{الف) } 9 + 12 = 13$$

$$\Rightarrow -12 + 12 = -9$$