

الف) $x^2 - 6x + 11 = 1 \rightarrow (x-2)^2 = 1 \rightarrow x-2 = \pm 1 \rightarrow \begin{cases} x=3 \\ x=1 \end{cases}$

ب) $x^2 + 11x + 17 = 9 \rightarrow (x+2)^2 = 9 \rightarrow x+2 = \pm 3 \rightarrow \begin{cases} x=-5 \\ x=1 \end{cases}$

الف) $x^2 - 3x + 2 = 0 \rightarrow (x-1)(x-2) = 0 \rightarrow \begin{cases} x=1 \\ x=2 \end{cases}$

ب) $x^2 - 3x - 14 = 0 \rightarrow (x+2)(x-7) = 0 \rightarrow \begin{cases} x=-2 \\ x=7 \end{cases}$

الف) $x^2 - 2x - 8 = 0 \rightarrow x = \frac{2 \pm \sqrt{4+32}}{2} \rightarrow \begin{cases} x = \frac{2+\sqrt{36}}{2} \\ x = \frac{2-\sqrt{36}}{2} \end{cases}$

ب) $2x^2 - 2x + \frac{1}{2} = 0 \rightarrow x = \frac{2 \pm \sqrt{4-2}}{4} \rightarrow \begin{cases} x = \frac{2+\sqrt{2}}{4} \\ x = \frac{2-\sqrt{2}}{4} \end{cases}$

الف) $x^2 - 2x + 1 = 0 \rightarrow a+b+c=0 \Rightarrow \begin{cases} x=1 \\ x=\frac{c}{a}=1 \end{cases}$

ب) $2x^2 + x - 2 = 0 \rightarrow a+c=b \Rightarrow \begin{cases} x=-1 \\ x=-\frac{c}{a} = -\left(\frac{-2}{2}\right) = 1 \end{cases}$

الف) $x^2 - 12x + 35 = 0 \rightarrow x^2 - 12x + 35 \rightarrow (x-5)(x-7) \rightarrow \begin{cases} x=\frac{0}{0}=1 \\ x=\frac{V}{0} \end{cases}$

ب) $2x^2 - 10x + 12 = 0 \rightarrow x^2 - 10x + 12 \rightarrow (x-1)(x-2) \rightarrow \begin{cases} x=\frac{V}{0} \\ x=\frac{12}{2}=6 \end{cases}$

$$\text{الف) } -2x^2 + 8x - 1 = 0 \rightarrow x = \frac{-8 \pm \sqrt{64 - 8}}{-4} \rightarrow x = \frac{-8 \pm \sqrt{56}}{-4}$$

$$\text{ب) } 2x^2 - x + 2 = 0 \rightarrow x = \frac{1 \pm \sqrt{1 - 16}}{4} \rightarrow \Delta = -15 \Rightarrow \text{لا يوجد حلا حقيقي}$$

$$\text{ج) } 2x^2 - 4x + 2 = 0 \rightarrow x = \frac{4 \pm \sqrt{16 - 16}}{4} = \frac{4}{4} = 1 \quad \text{د) } 2x^2 - x + 2 = 0 \rightarrow x = \frac{1 \pm \sqrt{1 - 16}}{4}$$

$$\text{الف) } \Delta > 0 \rightarrow b^2 - 4ac > 0 \rightarrow 9 - 16a > 0 \rightarrow a < \frac{9}{16}$$

$$\text{ب) } \Delta = 0 \rightarrow b^2 - 4ac = 0 \rightarrow 9 - 16a = 0 \rightarrow a = \frac{9}{16}$$

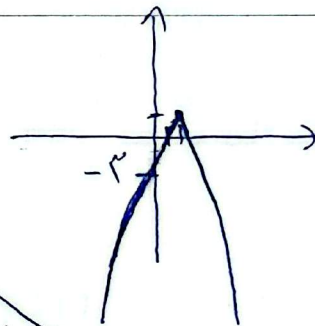
$$\text{ج) } \Delta < 0 \rightarrow b^2 - 4ac < 0 \rightarrow 9 - 16a < 0 \rightarrow a > \frac{9}{16}$$

$$\text{د) } \Delta \geq 0 \rightarrow b^2 - 4ac \geq 0 \rightarrow 9 - 16a \geq 0 \rightarrow a \leq \frac{9}{16}$$

$$\text{الف) } \min \left| \frac{-b}{2a} \right| = -2 \quad y = (x)^2 - 16 + 8 = -2$$



$$\text{الف) } \max \left| \frac{-b}{2a} \right| = 2 \quad y = -x^2 + 16 - 12 = 4$$



$$\text{ب) } x = \frac{-b \pm \sqrt{\Delta}}{2a} = \frac{-4 \pm \sqrt{16 - 12}}{-2} = \frac{-4 \pm 2}{-2} \rightarrow x = 1 \text{ or } x = 3$$

$$x^2 - 2x - 2 = 0 \rightarrow x^2 - 5x + 6 = 0 \rightarrow S = 5, P = -2$$

$$\text{الف) } S^2 - 2P = 5^2 - (2 \times (-2)) = 25 + 4 = 29$$

$$\text{ب) } S^2 - 2SP = 5^2 - (5 \times (-2)) = 25 + 10 = 35$$