

الف) $x^2 - 4x + 4 = 0 \Rightarrow x^2 - 4x + 4 = 0 \Rightarrow (x-2)^2 = 0 \Rightarrow x = 2$ -1

ب) $x^2 + 8x + 16 = 0 \Rightarrow x^2 + 8x + 16 = 0 \Rightarrow (x+4)^2 = 0 \Rightarrow x = -4$

الف) $x^2 - 5x + 6 = 0 \Rightarrow (x-2)(x-3) = 0 \Rightarrow x = 2, 3$ -2

ب) $x^2 - 5x - 14 = 0 \Rightarrow (x+2)(x-7) = 0 \Rightarrow x = -2, 7$

الف) $x^2 - 3x - 5 = 0 \xrightarrow{\Delta} x = \frac{-b \pm \sqrt{b^2 - 4ac}}{2a} \Rightarrow \frac{3 \pm \sqrt{9+20}}{2} = \frac{3 \pm \sqrt{29}}{2}$ -3

ب) $2x^2 - 4x + 1 = 0 \xrightarrow{\Delta} x = \frac{-b \pm \sqrt{b^2 - 4ac}}{2a} \Rightarrow \frac{2 \pm \sqrt{4-2}}{2} = \frac{2 \pm \sqrt{2}}{2}$

الف) $x^2 - 3x + 2 = 0 \Rightarrow (x-1)(x-2) = 0 \Rightarrow x = 1, 2$ -4

ب) $x^2 + x - 12 = 0 \Rightarrow (x+4)(x-3) = 0 \Rightarrow x = -4, 3$

الف) $5x^2 - 12x + 7 = 0 \Rightarrow x^2 - 12x + 35 = 0 \Rightarrow (x-5)(x-7) = 0 \Rightarrow x = 5, 7$ -5

ب) $3x^2 - 10x + 7 = 0 \Rightarrow x^2 - 10x + 21 = 0 \Rightarrow (x-3)(x-7) = 0 \Rightarrow x = 3, 7$

الف) $-3x^2 + 5x - 1 = 0 \xrightarrow{\Delta} \frac{-5 \pm \sqrt{25-12}}{-4} = \frac{-5 \pm \sqrt{13}}{-4}$ -6

ب) $2x^2 - x + 2 = 0 \xrightarrow{\Delta} \frac{1 \pm \sqrt{1-16}}{4} = \frac{1 \pm \sqrt{-15}}{4}$ این معادله ندارد

ب) $2x^2 - 4x + 2 = 0 \xrightarrow{\Delta} \frac{4 \pm \sqrt{16-16}}{4} = \frac{4 \pm 0}{4} = 1$ این معادله یک ریشه دارد

ب) $2x^2 - x + 1 = 0 \xrightarrow{\Delta} \frac{1 \pm \sqrt{1-8}}{4} = \frac{1 \pm \sqrt{-7}}{4}$ این معادله ندارد

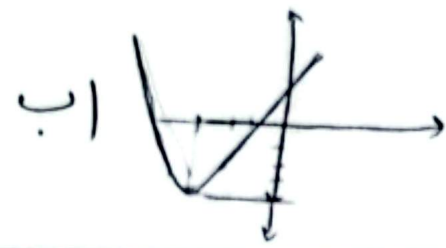
الف) $a < \frac{9}{\lambda}$ $\left(\frac{9}{\lambda} > 1\right)$ ب) $a = \frac{9}{\lambda}$ $\left(\frac{9}{\lambda} = 1\right)$ ج) $a > \frac{9}{\lambda}$ $\left(\frac{9}{\lambda} < 1\right)$

د) $a < \frac{9}{\lambda}$ $\left(\frac{9}{\lambda} < 1\right)$

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

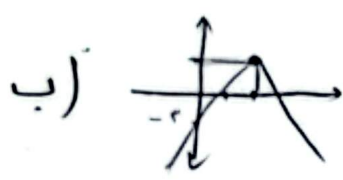
الف) $\text{Min} \mid -\frac{b}{2a} \Rightarrow -\frac{4}{2} = -2$ $\xrightarrow{\text{طابق}} y = (-2)^2 + 4(-2) + 5 = 9 - 8 + 5 = 6$ $\rightarrow y = 6$ $\lambda = 1$

$y = 6$
 $\text{Min} \mid -2$
 -6



$y = -x^2 + 4x - 3$ $-\frac{b}{2a} = -\frac{4}{-2} = 2$ $\xrightarrow{\text{طابق}} y = 4 - 4 + 1 - 3 = -2$ $\lambda = 1$

الف) $\text{max} \mid 1$



الف) $S^2 - 2P = \left(-\frac{b}{a}\right)^2 - 2\left(\frac{c}{a}\right) = \left(\frac{4}{1}\right)^2 - 2\left(\frac{-3}{1}\right) = 16 + 6 = 22$ $\lambda = 1$

ب) $S^2 - 3SP = \left(-\frac{b}{a}\right)^2 - 3\left(-\frac{b}{a}\right)\left(\frac{c}{a}\right) = \left(\frac{4}{1}\right)^2 - 3(4)(-3) = 16 + 36 = 52$ $\lambda = 1$