

الف) $x^2 - 4x + 1 = 0 \rightarrow x^2 - 4x = -1 \rightarrow \frac{-4}{2} = -2 \quad (-2)^2 = 4$
 $x^2 - 4x + 4 = -1 + 4 \rightarrow (x-2)^2 = 3 \xrightarrow{\text{جذبات}} x-2 = \pm\sqrt{3} \rightarrow x = 2 \pm \sqrt{3}$
 $(x-2)^2$

ب) $x^2 + 14x + 49 = 0$
 $x^2 + 14x = -49 \rightarrow \frac{14}{2} = 7 \quad 7^2 = 49 \rightarrow x^2 + 14x + 49 = -49 + 49 \rightarrow (x+7)^2 = 0$
 $x+7 = 0 \rightarrow x = -7$

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

ب) $x^2 - 4x - 12 = 0$
 $(x-6)(x+2) = 0 \rightarrow x = 6, x = -2$

الف) $x^2 - 3x - 4 = 0$
 $\Delta = b^2 - 4ac = 9 + 16 = 25$
 $x = \frac{-b \pm \sqrt{\Delta}}{2a} = \frac{3 \pm 5}{2}$
 $x_1 = \frac{3+5}{2} = 4, x_2 = \frac{3-5}{2} = -1$

ب) $2x^2 - 5x + \frac{1}{2} = 0$
 $x = \frac{5 \pm \sqrt{25 - 4 \cdot 2 \cdot \frac{1}{2}}}{2 \cdot 2} = \frac{5 \pm \sqrt{9}}{4} = \frac{5 \pm 3}{4}$
 $x_1 = \frac{5+3}{4} = 2, x_2 = \frac{5-3}{4} = \frac{1}{2}$

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

ب) $5x^2 + x - 3 = 0$
 $\Delta = b^2 - 4ac = 1 + 60 = 61$
 $x = \frac{-1 \pm \sqrt{61}}{10}$
 $x_1 = \frac{-1 + \sqrt{61}}{10}, x_2 = \frac{-1 - \sqrt{61}}{10}$

الف) $4x^2 - 12x + 9 = 0$
 $x^2 - 3x + \frac{9}{4} = 0 \rightarrow (x-\frac{3}{2})^2 = 0 \rightarrow x = \frac{3}{2}$

ب) $3x^2 - 10x + 7 = 0$
 $x^2 - \frac{10}{3}x + \frac{7}{3} = 0 \rightarrow (x-\frac{5}{3})(x-\frac{7}{3}) = 0 \rightarrow x = \frac{5}{3}, x = \frac{7}{3}$

$$a) 2m^2 + 8m - 120 \Rightarrow \frac{-8 \pm \sqrt{64 + 960}}{4} \Rightarrow \frac{-8 \pm 32}{4} \Rightarrow \begin{cases} 6 \\ -10 \end{cases}$$

$$b) 2m^2 - 5m + 2 = 0 \Rightarrow \frac{5 \pm \sqrt{25 - 16}}{4} = \frac{5 \pm 3}{4} \Rightarrow \begin{cases} 2 \\ \frac{1}{2} \end{cases}$$

$$b) 2m^2 - m + 2 = 0$$

$$c) 2m^2 - m + 120$$

$$\Delta \rightarrow 1 - 4(2)(2) \rightarrow -15$$

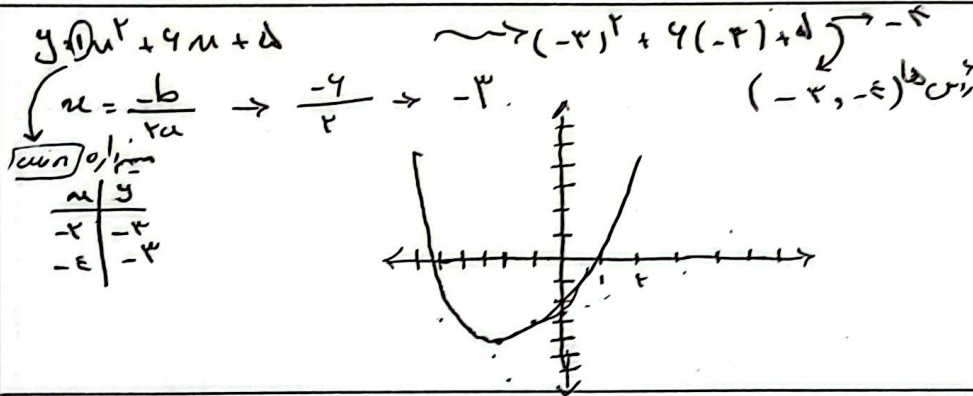
$$\Delta \rightarrow 1 - 4(2)(120) \rightarrow -960$$

دالة حتمية في $\mathbb{R}$ $\Delta < 0$

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

$$\Delta = 9 - 4a \Rightarrow \begin{cases} \Delta > 0 \Rightarrow a < \frac{9}{4} \\ \Delta = 0 \Rightarrow a = \frac{9}{4} \\ \Delta < 0 \Rightarrow a > \frac{9}{4} \end{cases}$$



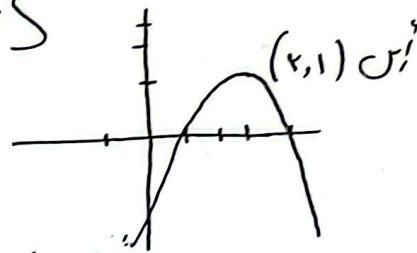
الف)

ب)

$$y = 9m^2 + 5m - 4$$

$m = \frac{-b}{2a} \rightarrow \frac{-5}{18} \rightarrow -\frac{5}{18}$

$y = 9(-\frac{5}{18})^2 + 5(-\frac{5}{18}) - 4 = -\frac{115}{36}$



الف)

ب)

$$-m^2 + 5m - 2 = 0 \Rightarrow (m-1)(m-2) = 0 \Rightarrow m = 1, 2$$

$$m^2 - 3m - 2 = 0 \Rightarrow \frac{3 \pm \sqrt{9 + 8}}{2} = \frac{3 \pm \sqrt{17}}{2}$$

$$a) s^2 - 2p \rightarrow s^2 - 2(-2) \rightarrow s^2 + 4 \rightarrow \{2i, -2i\}$$

الف)

$$b) s^2 - 3sp \rightarrow s^2 - 3(-2)(-2) \rightarrow s^2 - 12 \rightarrow \{2\sqrt{3}, -2\sqrt{3}\}$$

ب)