

$$\begin{aligned} \frac{x^2 b}{2a} &= \frac{1}{1} \\ b &= 2a \\ y &= ax^2 + bx + c \\ 9 &= a - 2a + c \rightarrow c = 9 + a \\ 1 &= 9a + 2b + c \rightarrow c = 1 - 18a \end{aligned} \Rightarrow \begin{aligned} a + a &= 1 - 18a \\ 2a &= -17a \\ a &= -\frac{1}{19} \\ b &= 2 \times -\frac{1}{19} = -\frac{2}{19} \\ c &= 9 - \frac{2}{19} = \frac{175}{19} \end{aligned}$$

$$y = ax^2 + bx + c$$

$$\boxed{y = -\frac{1}{19}x^2 - \frac{2}{19}x + \frac{175}{19}}$$

$$\begin{aligned} 2x^2 + mx + m + 4 &= 0 \\ \Delta \geq 0 &\rightarrow b^2 - 4ac \rightarrow m^2 - 4(m+4) \geq 0 \\ &\quad -4(m+4) \\ &\quad (m-4)(m+8) \geq 0 \\ &\quad m = 4 \quad m = -8 \end{aligned}$$

$$\begin{array}{c|c|c} -4 & - & 8 \\ \hline + & - & + \end{array}$$

$$m \rightarrow -8 < m < 4$$

$$\begin{aligned} \text{عوض} \rightarrow \frac{-b}{a} &\geq 0 \rightarrow \frac{-m}{2} \geq 0 \\ &\quad \frac{m}{2} \leq 0 \\ &\quad m \leq 0 \end{aligned}$$

$$\text{عوض} \rightarrow \frac{c}{a} = \frac{m+4}{2} \geq 0 \rightarrow m+4 \geq 0 \rightarrow m \geq -4$$

$$\begin{aligned} y &= 3x^2 + (2m-1)x + 2 - m = 0 \\ -\frac{b}{a} &= \frac{a}{c} \rightarrow \frac{1-2m}{3} = \frac{2}{2-m} \rightarrow a = (1-2m)(2-m) \\ &\quad a = 2 - m - 4m + 2m^2 \\ &\quad 2m^2 - 5m - 2 = 0 \\ &\quad m^2 - 5m - 1 = 0 \quad (m-5)(m+1) = 0 \\ &\quad m = 5 \quad m = -1 \end{aligned}$$

$$m = -1 \rightarrow y = 3x^2 - 3x + 3 = 0 \rightarrow \Delta = b^2 - 4ac = 9 - 36 < 0 \times$$

$$m = \frac{5}{2} \rightarrow y = 3x^2 + 4x + \frac{5}{2} = 0 \rightarrow \Delta = 16 - 30 < 0 \times$$

$$\begin{aligned} x^2 - x - 1 &= 0 \\ S: \text{عوض} \rightarrow x_1 + x_2 &= \frac{-b}{a} = \frac{1}{1} = 1 \\ P: \text{عوض} \rightarrow x_1 \times x_2 &= \frac{c}{a} = \frac{-1}{1} = -1 \\ x_1^2 + \frac{1}{x_1} + x_2^2 + \frac{1}{x_2} &= \frac{x_1 + x_2}{x_1 x_2} = \frac{1}{-1} = -1 \\ 5^2 - 1^2 &= 1 + 1 = 2 \rightarrow \frac{2}{1} = 2 = \frac{-b}{a} \end{aligned}$$

$$\begin{aligned} (x_1^2 + \frac{1}{x_1})(x_2^2 + \frac{1}{x_2}) &= (x_1 x_2)^2 + x_1^2 + x_2^2 + \frac{1}{x_1 x_2} \\ (-1)^2 + (x_1^2 + x_2^2) - 2x_1 x_2 &= 1 + 2 - 2(-1) = 1 + 2 + 2 = 5 \\ -4 + 9 + \frac{1}{-1} &= -\frac{4}{1} = -4 = \frac{c}{a} \end{aligned}$$

$$\boxed{y = 5x^2 - 4x - 1}$$

$$\begin{aligned} (\sqrt{x} + \frac{1}{\sqrt{x}} + 1)(\sqrt{x} - 1) &= 2\sqrt{x} \\ \sqrt{x} - 1 + 1 - \frac{1}{\sqrt{x}} + \sqrt{x} - 1 &\rightarrow 2\sqrt{x} - \frac{1}{\sqrt{x}} - 1 = 2\sqrt{x} \\ \sqrt{x} - \frac{1}{\sqrt{x}} - 1 &= 0 \rightarrow x^2 - 1 - 1 = 0 \rightarrow x^2 - 2 = 0 \rightarrow x = \pm \sqrt{2} \\ a &= \frac{-b \pm \sqrt{b^2 - 4ac}}{2a} = \frac{1 \pm \sqrt{1 - 4(-1)(-1)}}{2} = \frac{1 \pm \sqrt{0}}{2} = \frac{1}{2} \\ x_1 + x_2 &= [1] \end{aligned}$$

$$\omega_{\text{دور}} \rightarrow \alpha, \beta\alpha$$

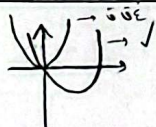
$$\text{ب.م.و} \rightarrow \alpha \times \beta\alpha = \frac{F}{\mu} \rightarrow \beta\alpha^2 = \frac{F}{\mu} \rightarrow \alpha^2 = \frac{F}{\mu} \rightarrow \alpha = \pm \sqrt{\frac{F}{\mu}}$$

$$\text{ع.ر.} \rightarrow \alpha + \beta\alpha = \frac{a}{\mu} = \frac{F\alpha}{1} \rightarrow \alpha = \beta\alpha$$

$$\alpha = \frac{F}{\mu} \rightarrow \alpha = \frac{F}{\mu} \times 1\mu = 1$$

$$\alpha = -\frac{F}{\mu} \rightarrow \alpha = -\frac{F}{\mu} \times 1\mu = -1 \quad \left. \vphantom{\alpha = -\frac{F}{\mu}} \right\} \rightarrow \boxed{14}$$

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$$a > 0$$

$$p = 0$$

$$S > 0 \rightarrow -\frac{F - Pa}{a} > 0 \quad \frac{-\frac{F}{\mu} \quad 0}{-1 + \frac{F}{\mu}}$$

(القيمة موجبة)

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$$y = \alpha^2 - 4\alpha - 2$$

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

$$\frac{-a}{2} = \frac{-1}{2} \rightarrow \boxed{a = 1}$$

$$\alpha^2 + 2\alpha - 2 = 1 \rightarrow \alpha^2 + 2\alpha - 3 = 0$$

$$(\alpha + 3)(\alpha - 1) = 0$$

$$\alpha = -3 \quad \alpha = 1$$

$$y = -\alpha^2 - 2\alpha + b$$

$$\alpha = \frac{-b}{2a} = \frac{-1}{-2} = \frac{1}{2}$$

$$y = 1 \rightarrow \alpha = 1 \rightarrow 1 = -1 - 2 + b \rightarrow \boxed{b = 2}$$

$$y = 1 \rightarrow \alpha = -3 \rightarrow 1 = -9 + 6 + b \rightarrow \boxed{b = 2}$$

$$a \times b = \boxed{2}$$

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$$r_1\alpha - a\alpha + b = 0$$

$$\hookrightarrow r_1, r_2$$

$$r_1 = s_1 + \alpha$$

$$r_2 = s_2 + \alpha$$

$$\text{ب.م.و} \rightarrow r_1 + r_2 = \frac{a}{\mu}$$

$$\text{ع.ر.} \rightarrow r_1 \times r_2 = \frac{b}{\mu}$$

$$\{ \quad r_2\alpha + a\alpha - 4 = 0$$

$$\hookrightarrow s_1, s_2$$

$$s_1 + s_2 = \frac{-a}{2a} = -\frac{1}{2}$$

$$s_1 \times s_2 = \frac{-4}{2a} = -\frac{2}{a}$$

$$r_1 + r_2 = s_1 + s_2 + 1$$

$$\frac{a}{\mu} = -\frac{1}{2} + \frac{1}{2} \rightarrow \frac{a}{\mu} = \frac{1}{2} \rightarrow \boxed{a = 1}$$

$$r_1 \times r_2 = (s_1 + \alpha)(s_2 + \alpha)$$

$$\frac{b}{\mu} = \frac{-2}{1} \rightarrow \frac{b}{\mu} = -2 \rightarrow \boxed{b = -4}$$

$$\left[\frac{ab}{\mu} \right] = \left[\frac{-4}{1} \right] = \boxed{-4}$$

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$$\alpha^2 + 4\alpha - 2 = \alpha^2 + 4\alpha + m$$

$$-2 = m \rightarrow \boxed{m = -2}$$

$$\alpha^2 + 4\alpha + 2 = 0 \rightarrow \alpha^2 + 2\alpha = -2 \quad \alpha^2 + 2\alpha + 1 = -3 \quad \alpha + 1 = -3 \quad \alpha = -4$$

$$\alpha^2 + 4\alpha - 2 = 0$$

$$\alpha^2 + 4\alpha + 2 = 0 \rightarrow (\alpha + 2)(\alpha + 2) = 0$$

$$\alpha^2 + 2\alpha - 12 = 0 \rightarrow (\alpha - 3)(\alpha + 4) = 0$$

$$\alpha = 3 \quad \alpha = -4$$

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