

$$A(-1, 9)$$

$$(3, 1)$$

$$a\left(\frac{x+1}{f}\right)^2 + 9 = y \rightarrow -\frac{1}{f}\left(\frac{x+1}{f}\right)^2 + 9 = y \rightarrow \frac{1}{f}x^2 + x = \frac{1}{f} + 9 = y$$

$$16a + 9 = 1 \rightarrow 16a = -8 \rightarrow a = -\frac{1}{2}$$

$$y = -\frac{1}{2}x^2 - x + \frac{17}{2}$$

$$x^2 + mx + y = 0$$

$$\Delta > 0$$

$$-\frac{b}{a} > 0$$

$$\frac{c}{a} > 0 \quad \checkmark$$

$$m^2 - 4 > 0 \quad -\frac{m}{f} > 0$$

$$m^2 > 4$$

$$+2\sqrt{3} > m > -2\sqrt{3}$$

$$-m > 0$$

$$m < 0$$

$$-2\sqrt{3} < m < 0$$

$$x^2 + (2m-1)x + 2-m = 0$$

$$\Delta > 0$$

$$\Delta = 1 + 4m = 1 \quad \Delta > 0 \rightarrow m = -1 \rightarrow \Delta = 9 - 36 < 0$$

$$-\frac{b}{a} = \frac{a}{c}$$

$$a^2 = -bc$$

$$m = \frac{a+9}{f} = \frac{\frac{1}{2}}{-1} = -\frac{1}{2}$$

$$9 = (m-2)(2m-1) = 2m^2 - m - 4m + 2$$

$$0 = 2m^2 - 5m - 1$$

$$x^2 - x - f = 0 \rightarrow \begin{cases} x_1 + x_2 = -\frac{b}{a} = 1 \rightarrow S \\ x_1 x_2 = \frac{c}{a} = -f \rightarrow P \end{cases} \quad y = x^2 + Sx + P$$

$$S = x_1^2 + x_2^2 + \frac{1}{x_1} + \frac{1}{x_2} = 1 + 14 - \frac{1}{f} = \frac{21}{f}$$

$$S^2 - 3PS$$

$$P = \left(\frac{1}{x_1 x_2}\right)^2 + \frac{S^2 - 3P}{x_1^2 + x_2^2} + \frac{1}{x_1 x_2} = -\frac{1}{f} + 1 + 1 + \frac{1}{f} = \frac{-11}{f}$$

$$\left(\sqrt[3]{x^2} + \frac{1}{\sqrt[3]{x^2}} + 1\right)\left(\sqrt[3]{x^2} - 1\right) = 2\sqrt[3]{x^2} \rightarrow \sqrt[3]{x^2} - 1 + \frac{1}{\sqrt[3]{x^2}} - 1 = 2\sqrt[3]{x^2}$$

$$2x = x^2 - 1 \rightarrow x^2 - 2x - 1 = 0$$

$$\frac{x^2 - 1}{\sqrt[3]{x^2}} = 2\sqrt[3]{x^2}$$

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

$$\alpha = \frac{1}{\beta} \quad \beta = \frac{1}{\alpha}$$

$$P = \frac{C}{a} = \frac{F}{\frac{1}{\beta}}$$

$$S = \frac{-b}{a} = \frac{-b}{\frac{1}{\beta}} \Rightarrow \beta + \frac{1}{\beta} = \frac{F}{\frac{1}{\beta}} \Rightarrow \beta = \frac{1}{\frac{1}{\beta}} \Rightarrow \beta = 1$$

$$3x^2 - a_1x + F = 0$$

$$3x^2 - a_1x + F = 0$$

$$(a_1 - a_1)x = 0$$

$$a_1 - a_1 = 0$$

$$a > 0$$

$$C = 0$$

$$\frac{-b}{2a} > 0 \quad \frac{-3 - 2a}{2a} > 0$$



$$3 + 2a < 0$$

$$2a < -3$$

$$a < -\frac{3}{2}$$

دالة (التي) تتغير

$$\frac{-a}{\frac{1}{\beta}} = -\frac{1}{\beta}$$

$$-\frac{a}{\frac{1}{\beta}} = -1 \Rightarrow a = 1$$

$$y = 3x^2 + 2x - 1$$

$$y = -x^2 - 2x + b$$

$$ab = 1$$

$$1 = x^2 + 2x - 1$$

$$1 = -1 - 2 + b$$

$$x^2 + 2x - 3 = 0 \quad (x-1)(x+3)$$

$$b = 4$$

$$\frac{a}{\frac{1}{\beta}} = \frac{-1}{\frac{1}{\beta}} + 1 \Rightarrow \frac{a}{\frac{1}{\beta}} = \frac{1}{\frac{1}{\beta}} \Rightarrow a = 1$$

$$3x^2 + x - 4 = 0$$

$$3x^2 - x + b = 0$$

$$\Delta = 1 + 16 = 17$$

$$\frac{-1 \pm \sqrt{17}}{3} \quad \frac{-1 \pm \sqrt{17}}{3} \rightarrow -\frac{1}{3} = \frac{b}{a}$$

$$\frac{b}{\frac{1}{\beta}} = -\frac{1}{\frac{1}{\beta}} \Rightarrow b = -1$$

$$\frac{ab}{\frac{1}{\beta}} = \frac{-1}{\frac{1}{\beta}} = -\frac{1}{\frac{1}{\beta}}$$

$$x^2 + 2x - 3m = x^2 + 2x + m$$

$$x^2 + 2x + a = (x+a)(x+1) = 0$$

$$x^2 + 2x + a = 0$$

$$x^2 + 2x - 1 = (x+a)(x-1) = 0$$

$$x = -m \Rightarrow x = -a$$

$$x^2 + 2x - 3m \rightarrow m^2 + 2m - 3m = 0 \Rightarrow m = 0 \text{ or } m = 1$$

$$3(-1) = -3$$