

$$\textcircled{1} x_{\min} = \frac{-b}{2a} \Rightarrow \frac{b}{2a} \quad y_{\max} = -\left(\frac{-b}{2a}\right)^2 + b\left(\frac{b}{2a}\right) + c \Rightarrow \frac{b^2}{4a} + \frac{b^2}{2a} + c$$

$$\Rightarrow y_{\max} = \frac{b^2}{4a} + c \rightarrow \frac{b^2}{4} + c = 14 \rightarrow \frac{b^2}{4} = 14 - c \rightarrow b = \pm 2\sqrt{14 - c}$$

$$\textcircled{2} \text{ الف) } t = x^2 \rightarrow t^2 + 2t + 3 = 0 \quad \Delta < 0 \quad \text{عديم}$$

$$\text{ب) } t = \varepsilon - x^2 \rightarrow t^2 - 2t - 3 = 0 \quad (t-3)(t+1) = 0$$

$$t = 3 \rightarrow \varepsilon - x^2 = 3 \rightarrow x^2 = -1 \quad \text{لا}$$

$$t = -1 \rightarrow \varepsilon - x^2 = -1 \rightarrow x^2 = 1 \rightarrow x = \pm 1$$

$$\textcircled{3} \alpha = \beta + 2 \rightarrow \alpha + \beta = \frac{-b}{a} \quad 2\beta + 2 = \frac{-14}{\varepsilon} \rightarrow 2\beta = -2$$

$$\beta = -1 \quad \alpha = 1$$

$$\Delta > 0$$

$$\alpha\beta = \frac{c}{a} \quad \beta = -1 \quad \frac{m}{\varepsilon} \rightarrow m = 1$$

$$\textcircled{4} 2\alpha - \beta = \varepsilon \rightarrow \beta = 2\alpha - \varepsilon$$

$$\alpha + \beta = \frac{9}{\mu} = 1 \rightarrow \alpha + 2\alpha - \varepsilon = 1 \rightarrow 3\alpha - \varepsilon = 1 \rightarrow \alpha = \frac{1 + \varepsilon}{3}$$

$$\alpha\beta = \frac{m-1}{\mu} \quad \frac{m-1}{\mu} = 0 \quad m-1 = 0 \quad m = 1$$

$$\Delta > 0$$

$$\textcircled{5} \text{ ج) } \frac{c}{a} = 1 \Rightarrow \frac{-m^2 - 1}{m} = 1 \rightarrow -m^2 + 1 = m \rightarrow m^2 + m - 1 = 0$$

$$(m+1)(m-1) = 0 \quad m = -1 \rightarrow \Delta > 0 \quad \text{لا}$$

$$m = 1 \rightarrow \Delta > 0 \quad \checkmark$$

$$\textcircled{6} \alpha\beta = \varepsilon \rightarrow \frac{\alpha\beta}{\mu} = \frac{\varepsilon}{\beta} \rightarrow \frac{\varepsilon}{\beta} = \mu \rightarrow \beta = \frac{\varepsilon}{\mu} \quad \alpha = \frac{9}{\varepsilon}$$

$$\alpha + \beta = m \rightarrow m = \frac{\varepsilon}{\mu} + \frac{9}{\varepsilon} \geq \frac{2 \cdot 9}{18} = 1$$

$$\Delta > 0$$

$$① \alpha = \mu/\beta$$

$$x^m = m \rightarrow \mu/\beta = m$$

$$\alpha + \beta = 2\varepsilon \quad \bullet \varepsilon/\beta = 2\varepsilon \rightarrow \mu = 2\varepsilon \rightarrow \alpha = \mu = 2\varepsilon$$

Δ 56

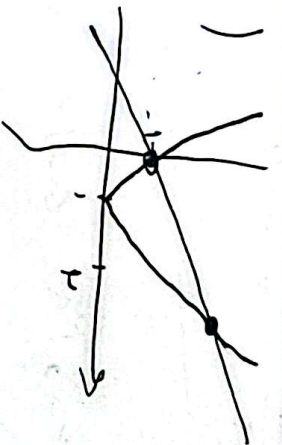
② $\frac{d}{dt} \ln x = \frac{1}{x} \frac{dx}{dt} \rightarrow \ln x = \int \frac{1}{x} \frac{dx}{dt} dt = \int \frac{1}{x} dx = \ln x + C$

③ $\ln(t) = 0 \rightarrow -1 \cdot \frac{1}{t} + \omega t = \frac{2 \cdot 4 \cdot 1 \cdot \omega}{\omega}$

$$-1 \cdot \frac{1}{t} (t - \omega) = 0$$

$$\begin{cases} t=0 \\ t=\omega \end{cases}$$

1. (a)

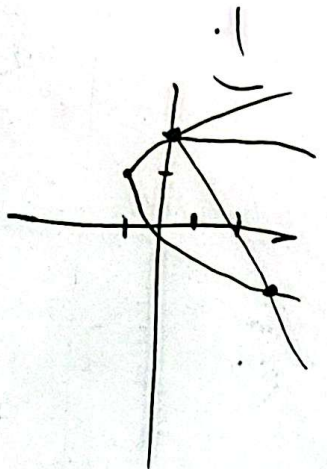


$$x^r - \frac{1}{x} + 1 \leq \mu x + 1$$

$$x^r - \frac{1}{x} \leq 0 \rightarrow x = 0 \rightarrow x = 1$$

④

$$x = 1$$



$$\alpha \beta = 1 \rightarrow (\alpha = \frac{1}{\beta})^r$$

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

$$\alpha^r + \frac{1}{\alpha^r} \rightarrow \alpha^r + \beta^r = 5 - \mu = 1.1$$