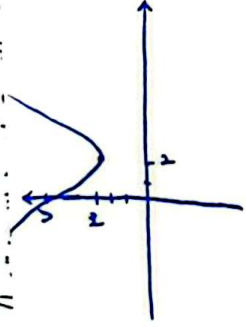


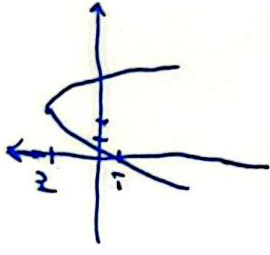
① انف $a > 0$

$$x, r = -\frac{b}{m}$$

$$y = m$$



$\rightarrow a < 0$
 $x = -\frac{b}{m}, y = m$



② $\Delta > 0 \rightarrow (m+1)^2 - 4 \times r \times \frac{1}{m} = 0 \Rightarrow m^2 - 2m - 1 > 0$

$$\rightarrow (-\infty, -1) \cup (1, +\infty)$$

ب) $\Delta = 0 \rightarrow (m-1)(m+1) = 0 \rightarrow m = 1, -1$

ج) $\Delta < 0 \rightarrow (m-1)(m+1) < 0 \rightarrow -1 < m < 1$

د) $\Delta < 0 \rightarrow (m-1)(m+1) > 0 \rightarrow m < -1 \text{ or } m > 1$

③ $y = (m-1)x^2 - 2 \times r \times (m+1)x + 1$

انف $-\frac{b}{a} < 0 \rightarrow \frac{2 \times m + 1}{m-1} < 0 \Rightarrow \frac{1}{m-1} < 0 \Rightarrow m < 1$

ب) $\frac{c}{a} < 0 \Rightarrow \frac{1}{m-1} < 0 \Rightarrow m < 1$

$-\frac{b}{a} < 0 \Rightarrow \frac{2 \times m + 1}{m-1} < 0 \Rightarrow m < 1$

ج) $\Delta < 0 \Rightarrow \frac{1}{m-1} < 0 \Rightarrow m < 1$

د) انف $\frac{c}{a} < 0 \Rightarrow \frac{1}{m-1} < 0 \Rightarrow m < 1$

ب) $\frac{b}{a} < -1 \rightarrow \frac{2 \times m + 1}{m-1} < -1 \rightarrow \frac{3 \times m + 2}{m-1} < 0 \Rightarrow m < -\frac{2}{3}$

⑤ $\Delta \geq 0 \rightarrow (-2 \sin \alpha)^2 - 4 \times \frac{r}{m} \times \frac{1}{m} = 4 \sin^2 \alpha - 4 \geq 0 \Rightarrow \sin^2 \alpha \geq 1$

$\sin \alpha = \pm 1$

$\frac{\sin \alpha = 1}{\sin \alpha = -1} \rightarrow x = \frac{1}{m}, \frac{1}{m}$

$\sin \alpha = -1 \rightarrow x = \frac{1}{m}, \frac{1}{m}$

⑥ $y = \frac{(m^2 - 2 \times r \times 1)(1 \times 1 - 1 \times 1)}{1 - 1} = \frac{(m^2 - 2 \times r \times 1)(1 - 1)}{0} = \frac{(m^2 - 2 \times r \times 1)(1 - 1)}{0}$

$\rightarrow -(4 \times \frac{1}{m} - 1 \times 1 + 1 \times 1 - 1) \rightarrow -4 \times \frac{1}{m} + 1 \times 1 + 1 \times 1 - 1 = \frac{1}{m}$

$y_{\max} = -4 \times (\frac{1}{m})^2 + 1 \times \frac{1}{m} + 1 \times 1 - 1 = \frac{1}{m}$

$$\textcircled{v} \quad \psi(\alpha + \beta) = \omega(\alpha, \beta) + V$$

$$\psi\left(\frac{m+r}{m}\right) = \omega\left(\frac{-r}{m}\right) + V \rightarrow \frac{rm+1q}{m} = V \rightarrow m = 8$$

$$8x^r - 4x - r = 0 \rightarrow x^r = \frac{r}{8} \rightarrow \beta^r = \frac{r}{8} \rightarrow \left(\frac{r}{8}\right)^r - r\left(-\frac{1}{8}\right) = \frac{1r}{8}$$

$$S = \frac{r}{8}$$

$$P = -\frac{1}{8}$$

(5)

$$\textcircled{1} \quad \beta^r - \omega\beta + r = 0 \rightarrow \beta^r = \omega\beta - r$$

$$\beta^m = \beta \times \beta^r = \omega\beta^r - r\beta = r^2\beta - 1$$

$$\beta^8 = r^2\beta^r - 1 \cdot \beta \rightarrow 1 \cdot \omega\beta = 4 \quad \beta^8 = \beta \times \beta^7 = 8V\beta - 1 \cdot 1$$

$$\alpha\beta = r \quad a = \frac{r}{\beta} \rightarrow \frac{\alpha^r + \beta^r}{\omega} = \frac{5^r - 12r}{\omega} = 19 \quad (5)$$

$$\textcircled{9} \quad y = ax^r + bx + c \rightarrow y = 8x = 0 \rightarrow a(0) + b(0) + c = 8 \rightarrow c = 8$$

$$x = r \begin{cases} 8a + rb + c = 19 \\ 9a - r^2b + c = 8 \end{cases} \xrightarrow{x^m} \begin{cases} 11a + 4b = 19 \\ 11a - 4b = 0 \end{cases} \rightarrow a = 1 \rightarrow b = 1 \quad (5)$$

$$ax^r + bx + c \rightarrow a^r + rx + 8 \quad -\frac{6}{ra} = -\frac{r}{8}$$

$$\textcircled{10} \quad y = x \rightarrow rx^r + (m+1)x + m + r$$

$$rx^r + mx + m + r = 0$$

$$\Delta < 0 \quad (m)^r - 8x^r + m + r = 0 \rightarrow m^r - 11m - 8 = 0 \quad (5)$$

$$\xrightarrow{m=1r} rx^r + 11x + 11 = 0 \rightarrow (x+1)^r = 0 \rightarrow x = -1 \text{ repeated } r \text{ times}$$

$$\xrightarrow{m=8} rx^r + 8x + 1 = 0 \rightarrow (x-1)^r = 0 \rightarrow x = 1 \text{ repeated } r \text{ times} \quad (1)$$