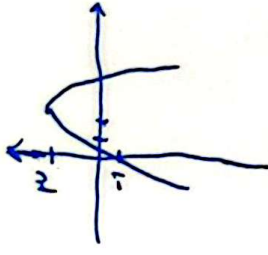
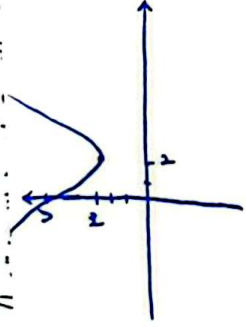


① انف $a > 0$

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

$$y = m$$



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

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

انف $-\frac{b}{a} < 0 \rightarrow \frac{r(m+1)}{m-1} < 0 \Rightarrow \frac{1}{m-1} < 0 \Rightarrow m < 1$

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

$-\frac{b}{a} < 0 \Rightarrow \frac{r(m+1)}{m-1} < 0 \Rightarrow m < 1$

④ انف $\frac{c}{a} < 0$

$\frac{1}{m-1} < 0 \Rightarrow m < 1$

ب) $\frac{b}{a} < -r \rightarrow \frac{r(m+1)}{m-1} < -r \rightarrow \frac{r(m+1)}{m-1} < -r \Rightarrow m < 1$

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

$\sin \alpha \neq 1$

$\frac{\sin \alpha}{\sin \alpha} = 1 \rightarrow x = \frac{b}{m}$ ✓

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

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

$\rightarrow -(r x^2 - 1)(\omega x + 1) \rightarrow -r x^3 + r x + \omega$
 $x = -\frac{b}{m}, \frac{1}{m}$

$y_{max} = -4 \left(\frac{1}{m} \right)^2 + r \left(\frac{1}{m} \right) + \omega = \frac{r}{m} + \omega$

$$\textcircled{v} \quad \psi\left(\alpha + \frac{\beta}{-6}\right) = \omega\left(\alpha + \frac{\beta}{6}\right) + V$$

$$\psi\left(\frac{m+\beta}{m}\right) = \omega\left(\frac{-\beta}{m}\right) + V \rightarrow \frac{m\beta + 19}{m} = V \rightarrow m = 8$$

$$8x^m - 9x - 1 = 0 \rightarrow x^m = \frac{1+\beta}{8} \rightarrow \beta = 8x^m - 1 \rightarrow \left(\frac{m}{8}\right)^m - 1 = \frac{19}{8}$$

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

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

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

$$\beta^m = \beta \times \beta^{m-1} = \omega(\beta - 1) = 19\beta - 1$$

$$\beta^m = 19\beta - 1 \rightarrow 1 = \omega(\beta - 1) \rightarrow \beta^m = \beta \times \beta^{m-1} = 19\beta - 1$$

$$\alpha\beta = 1 \quad \alpha = \frac{1}{\beta} \rightarrow \frac{\alpha^m + \beta^m}{\omega} = \frac{5^m - 19\beta}{\omega} = 19$$

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

$$x = 1 \quad \begin{cases} 8a + 1b + c = 19 \\ 9a - 1b + c = 8 \end{cases} \xrightarrow{x=1} \begin{cases} 17a + 2b = 11 \\ 17a - 2b = 0 \end{cases} \rightarrow a = 1 \rightarrow b = 1$$

$$ax^m + bx + c \rightarrow a^m + mx + 8 \quad -\frac{6}{19a} = -\frac{m}{8}$$

$$\textcircled{10} \quad y = x \rightarrow mx^m + (m+1)x + m + 9$$

$$mx^m + mx + m + 9 = 0$$

$$\Delta < 0 \quad (m)^m - 8x^m + m + 9 = 0 \rightarrow m^m - 19m - 8 = 0$$

$$\xrightarrow{m=19} mx^m + 19x + 19 = 0 \rightarrow (x+1)^m = 0 \rightarrow x = -1$$

$$\xrightarrow{m=8} mx^m + 8x + 1 = 0 \rightarrow (x-1)^m = 0 \rightarrow x = 1 \quad \text{Jawab } \checkmark \quad (1)$$