

\Rightarrow if $x = a \Rightarrow x + y = a + y = f \Rightarrow a + y = f - y$ (1)
 $y = f - a \Rightarrow a = f - y$ ✓ (2)

$f(x) = \frac{f+a}{f-b} = y \Rightarrow y - b = f+a \Rightarrow a = y - b$ (2)

$g(x) = f + b = y \Rightarrow b = y - f \Rightarrow a = 1 \Rightarrow \frac{f}{y} = \frac{1+1}{y-(1)} \Rightarrow \frac{f}{y} = \frac{2}{y-1}$ ✓

$\Rightarrow y^2 + fa + b = 0 \Rightarrow b = -y^2 - fa$
 $\Rightarrow y - a + b = 0 \Rightarrow b = a - y$

$f(x) = \frac{f+1}{y+(-y)+(-1)} = \frac{f+1}{-1}$

a
-1

$y^2 - 4x - 1$ ✓

$-f - a + b = 0 \Rightarrow b = a + f$ (3)
 $\frac{-a}{-f} = \frac{a}{f} = -1 \Rightarrow a = -1 \Rightarrow b = -1 + f = f - 1$ ✓ (2)

$$\rightarrow x^2 + mx + 1 \xrightarrow{m \neq 0} 1 + m + 1 \leq \gamma + m \leq \gamma - \gamma$$

$$\rightarrow m^2 - \gamma < 0 \Rightarrow m^2 < \gamma \Rightarrow -\sqrt{\gamma} < m < \sqrt{\gamma}$$

$m \in [-\sqrt{\gamma}, \sqrt{\gamma}]$

(9)

$$f - \frac{1}{x^2} \geq 0 \Rightarrow f \geq \frac{1}{x^2} \Leftrightarrow fx^2 \geq 1$$

$$x^2 \geq \frac{1}{f}$$

$$x \geq \frac{1}{\sqrt{f}}$$

$$x \leq -\frac{1}{\sqrt{f}}$$

$$x \neq 0$$

$\left. \begin{array}{l} \text{if } f > 0 \\ \text{if } f < 0 \end{array} \right\} \Rightarrow \left(-\frac{1}{\sqrt{f}}, \frac{1}{\sqrt{f}}\right)$

$$mx^2 + \gamma mx + 1 \geq 0$$

$$f m^2 - f m \leq 0$$

if $m \in (0, 1) \rightarrow mx^2 + \gamma mx + 1$

if $m \in \{0, 1\} \rightarrow mx^2 + \gamma mx + 1$

$0 \leq m \leq 1$

$$\frac{(\gamma m - 1)(\gamma m + 1)}{(\gamma m + 1)}, \gamma m + 1, \gamma m + 1$$

$$n \leq \frac{1}{\gamma} \rightarrow \gamma + k \leq \gamma \Rightarrow k \leq 0 \Rightarrow a \leq \frac{1}{\gamma}$$

$$\Rightarrow a + k \leq \frac{1}{\gamma}$$

