

①

$$f(x) = \frac{x(1-x)}{(x-1)^2 - x^2} \rightarrow \frac{x(1-x)}{1-x^2} \rightarrow \frac{x(1-x)}{(1-x)(1+x)} \rightarrow \frac{x}{1+x}$$

ب) $x = \frac{1}{1+x}$

$$R = \left\{ -\frac{1}{2}, 0, \frac{1}{2}, 1 \right\}$$

$$D_f = [1, \infty)$$

ب) $x = \frac{1}{1+x}$

$$f(x) = \frac{x(1-x)}{(x-1)^2 - x^2} \rightarrow \frac{x(1-x)}{1-x^2} \rightarrow \frac{x(1-x)}{(1-x)(1+x)} \rightarrow \frac{x}{1+x}$$

②

$$f(x) = \frac{x(1-x)}{(x-1)^2 - x^2} \rightarrow \frac{x(1-x)}{1-x^2} \rightarrow \frac{x(1-x)}{(1-x)(1+x)} \rightarrow \frac{x}{1+x}$$

ب) $x = \frac{1}{1+x}$

$$R = \left\{ -\frac{1}{2}, 0, \frac{1}{2}, 1 \right\}$$

$$D_f = [1, \infty)$$

③

$$f(x) = \frac{x(1-x)}{(x-1)^2 - x^2} \rightarrow \frac{x(1-x)}{1-x^2} \rightarrow \frac{x(1-x)}{(1-x)(1+x)} \rightarrow \frac{x}{1+x}$$

ب) $x = \frac{1}{1+x}$

$$R = \left\{ -\frac{1}{2}, 0, \frac{1}{2}, 1 \right\}$$

$$D_f = [1, \infty)$$

④

$$f(x) = \frac{x(1-x)}{(x-1)^2 - x^2} \rightarrow \frac{x(1-x)}{1-x^2} \rightarrow \frac{x(1-x)}{(1-x)(1+x)} \rightarrow \frac{x}{1+x}$$

ب) $x = \frac{1}{1+x}$

$$R = \left\{ -\frac{1}{2}, 0, \frac{1}{2}, 1 \right\}$$

$$D_f = [1, \infty)$$

⑤

$$f(x) = \frac{x(1-x)}{(x-1)^2 - x^2} \rightarrow \frac{x(1-x)}{1-x^2} \rightarrow \frac{x(1-x)}{(1-x)(1+x)} \rightarrow \frac{x}{1+x}$$

ب) $x = \frac{1}{1+x}$

$$R = \left\{ -\frac{1}{2}, 0, \frac{1}{2}, 1 \right\}$$

$$D_f = [1, \infty)$$

$$f\left(\frac{\sqrt{r}}{r}+1\right) \rightarrow r(x^r) - t(x)$$

$$r\left(\frac{r}{r} + \sqrt{r} + 1\right) - r\sqrt{r} - r = -\frac{1}{r}$$

$$f(f(a)) = a$$

$$\hookrightarrow \frac{\frac{d+1}{a-1} + 1}{\frac{a+1}{a-1} - 1} = \frac{\frac{ra}{a-1} - r}{\frac{r}{a-1}} = a \quad R = \{1\}$$

$$f(g(a)) = -t$$

$$\sqrt{a^r - 1} = t$$

$$\left(\sqrt{a^r - 1}\right)^r - t\sqrt{a^r - 1} = -t \rightarrow t^r - t = -t$$

$$(t^r - t)^r = 0 \quad t = r \rightarrow \sqrt{a^r - 1} = r \quad a = \pm \sqrt{a}$$

$$f(t) \times f(-r)$$

$$\left. \begin{aligned} f(-r) &\stackrel{x=-r}{\Rightarrow} r^2 + r^2 + r = \sqrt{r} \\ f(t) &\stackrel{x=t}{\Rightarrow} 1 - 2 + r = r \end{aligned} \right\} 1 + t$$

$$f(t \cos^r x + 2 \cos x) = t \tan^r$$

$$\cos x = t$$

$$t^r + 2t = r^r, 2 \quad 1 + t + 1 \cdot t - \sqrt{t} = 0$$

$$+ r + 1 \cdot t - 2\sqrt{t} = 0$$

$$t = \frac{1}{4}, t = -\frac{r}{\sqrt{r}}$$

$$1 + \tan^r = \frac{1}{\frac{1}{4}} \rightarrow \tan^r x = \frac{rA}{\frac{1}{4}}$$