

$$\textcircled{4} \quad f(x) = \sqrt{3-x} = y$$

switch  $\sqrt{3-y} = x$

$$3-y = x^2$$

$$3-x^2 = y = g(x)$$

$$g'(x) = -2x$$

$$\textcircled{5} f(x) = x^{-5} = y$$

$$g(x) = x^{-1/5}$$

$$g'(x) = -\frac{1}{5}x^{-6/5}$$

$$y^{-5} = x$$

$$\frac{1}{y^5} = x$$

$$y^5 = \frac{1}{x}$$

$$y = \sqrt[5]{\frac{1}{x}} = g(x)$$

$$\textcircled{6} \quad f(x) = y = 4x^3 - 1$$

$$x = 4y^3 - 1$$

$$x + 1 = 4y^3$$

$$\frac{x+1}{4} = y^3$$

$$g(x) = y = \left(\frac{x+1}{4}\right)^{1/3}$$

$$g'(x) = \frac{1}{3} \left(\frac{x+1}{4}\right)^{-2/3} \left(\frac{1}{4}\right)$$

$$\textcircled{5} \quad f(x) = \frac{x}{x+1} = y$$

$$\frac{y}{y+1} = x$$

$$y = x(y+1)$$

$$y = xy + x$$

$$y - xy = x$$

$$y(1-x) = x$$

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

$$g'(x) = \frac{(1-x)(1) - x(-1)}{(1-x)^2}$$

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