

$$\textcircled{4} \quad f(x) = \frac{1}{1+x} \quad a = 1 \quad (1+x)^{-1}$$

$$f(1) = \frac{1}{2}$$

$$f'(x) = -(1+x)^{-2} \quad f'(1) = -\frac{1}{4}$$

$$f''(x) = 2(1+x)^{-3} \quad f''(1) = \frac{1}{4}$$

$$f'''(x) = -6(1+x)^{-4} \quad f'''(1) = -\frac{3}{8}$$

$$T_3(x) = \frac{1}{2} - \frac{1}{4}(x-1) + \frac{1}{4} \frac{(x-1)^2}{2!} - \frac{3}{8} \frac{(x-1)^3}{3!}$$

⑥  $f(x) = \tan x$        $a = \pi/4$

$$f(\pi/4) = 1$$

$$f' = \sec^2 x \quad f'(\pi/4) = 2$$

