

指數與對數的導函數

EX 1. $f(x) = \ln(x^2+7)$ 的導函數

$$\begin{aligned} f'(x) &= \frac{d}{dx} \ln(x^2+7) \\ &= \frac{1}{x^2+7} \frac{d}{dx} (x^2+7) \\ &= \frac{2x}{x^2+7} \end{aligned}$$

EX 2. $f(x) = 3^{x^2+x+1}$ 的導函數

$$\begin{aligned} f'(x) &= \frac{d}{dx} 3^{x^2+x+1} \\ &= 3^{x^2+x+1} \ln 3 \frac{d}{dx} (x^2+x+1) \\ &= (2x+1) 3^{x^2+x+1} \ln 3 \end{aligned}$$