

EXP & LOG FUNCTIONS - Derivatives & Integrals

$$\frac{d}{dx}(e^x) = e^x \quad \dots \rightarrow \int e^x dx = e^x + C$$

$$\frac{d}{dx}(e^{f(x)}) = f'(x) \cdot e^{f(x)} \quad \dots \rightarrow \int f'(x) e^{f(x)} dx = e^{f(x)} + C$$

$$\frac{d}{dx}(\ln x) = \frac{1}{x} \quad \dots \rightarrow \int \frac{1}{x} dx = \ln|x| + C$$

$$\frac{d}{dx}(\ln f(x)) = \frac{f'(x)}{f(x)} \quad \dots \rightarrow \int \frac{f'(x)}{f(x)} dx = \ln|f(x)| + C$$