

Some rules for finding derivatives

1. If b is constant, then $db/dx = 0$.

2. If a and b are constants and $b \neq 0$, then

$$\frac{dax^b}{dx} = bax^{b-1}$$

3. $d\ln(x)/dx = 1/x$ (where \ln denotes \log_e)

Let $f(x)$ and $g(x)$ be two functions. Then

$$4. \frac{d[f(x) + g(x)]}{dx} = \frac{df(x)}{dx} + \frac{dg(x)}{dx}$$

$$5. \frac{d[f(x) \cdot g(x)]}{dx} = f(x)g'(x) + g(x)f'(x)$$

$$6. \frac{d\left(\frac{f(x)}{g(x)}\right)}{dx} = \frac{g(x)f'(x) - f(x)g'(x)}{[g(x)]^2}, g(x) \neq 0$$