

Summary of formulae for derivatives

You are responsible for the following formulae. We assume b , m and p are real numbers and that f, g , N and D are differentiable at the appropriate places.

$$\frac{d}{dx}mx + b = m$$

$$\frac{d}{dx}x^p = px^{p-1} \text{ if } x^{p-1} \text{ is defined}$$

$$\frac{d}{dx}\sin(x) = \cos(x)$$

$$\frac{d}{dx}\cos(x) = -\sin(x)$$

$$\frac{d}{dx}\tan(x) = \sec^2(x)$$

$$\frac{d}{dx}\exp(x) = \exp(x)$$

$$\frac{d}{dx}\ln(|x|) = \frac{1}{x}$$

$$\frac{d}{dx}|x| = \frac{|x|}{x}$$

$$\frac{d}{dx}(f(x) + mg(x)) = f'(x) + mg'(x)$$

$$\frac{d}{dx}(f(x)g(x)) = f'(x)g(x) + f(x)g'(x)$$

$$\frac{d}{dx}\left(\frac{N(x)}{D(x)}\right) = \frac{N'(x)D(x) - N(x)D'(x)}{D^2(x)}$$

$$\frac{d}{dx}g(f(x)) = g'(f(x))f'(x)$$