

Derivatives

$$\frac{d}{dx} c = 0$$

$$\frac{d}{dx} x^n = nx^{n-1}$$

$$\frac{d}{dx} b^x = b^x \ln b$$

$$\frac{d}{dx} e^x = e^x$$

$$\frac{d}{dx} \log_b x = \frac{1}{x \ln b}$$

$$\frac{d}{dx} \ln x = \frac{1}{x}$$

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

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

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

$$\frac{d}{dx} \csc x = -\csc x \cot x$$

$$\frac{d}{dx} \sec x = \sec x \tan x$$

$$\frac{d}{dx} \cot x = -\csc^2 x$$

$$f'(x) = \lim_{h \rightarrow 0} \frac{f(x+h) - f(x)}{h}$$

$$(f \pm g)' = f' \pm g'$$

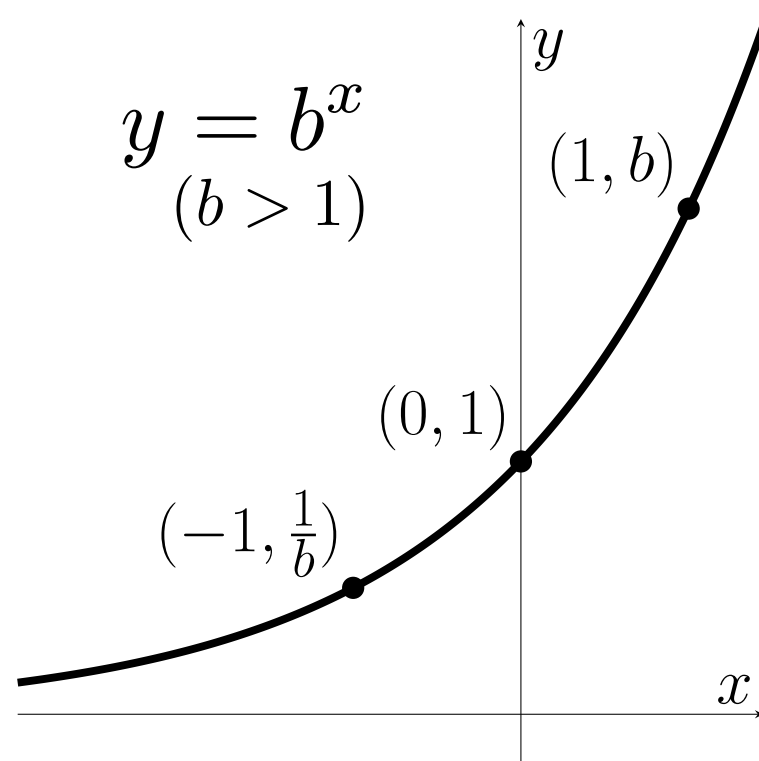
Product Rule

$$(fg)' = f'g + fg'$$

Quotient Rule

$$\left(\frac{f}{g}\right)' = \frac{f'g - fg'}{g^2}$$

Exponentials and Logarithms



$$b^{\log_b x} = x$$

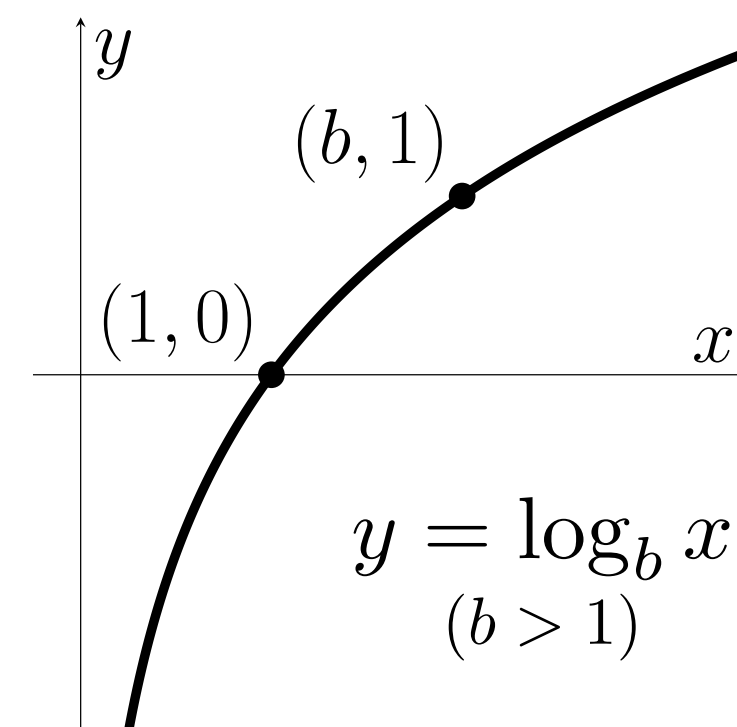
$$\log_b(b^x) = x$$

$$\log_b x = c \iff b^c = x$$

$$\log_b(xy) = \log_b x + \log_b y$$

$$\log_b\left(\frac{x}{y}\right) = \log_b x - \log_b y$$

$$\log_b(a^x) = x \log_b a$$

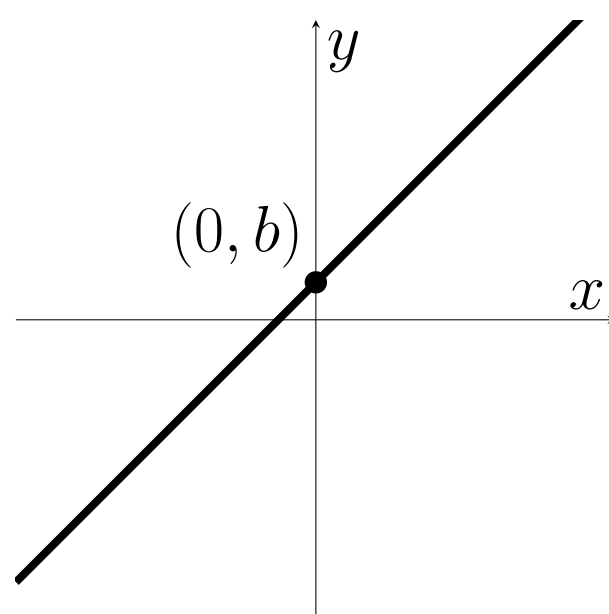


Polynomials

Line

$$y = mx + b$$

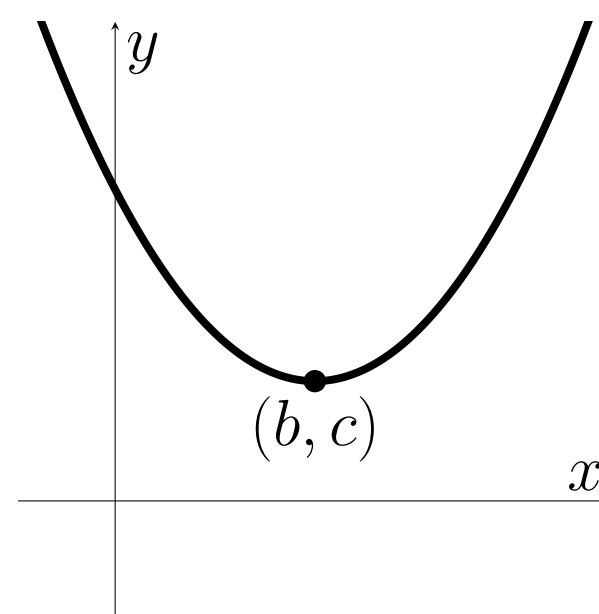
$(m > 0)$



Quadratic

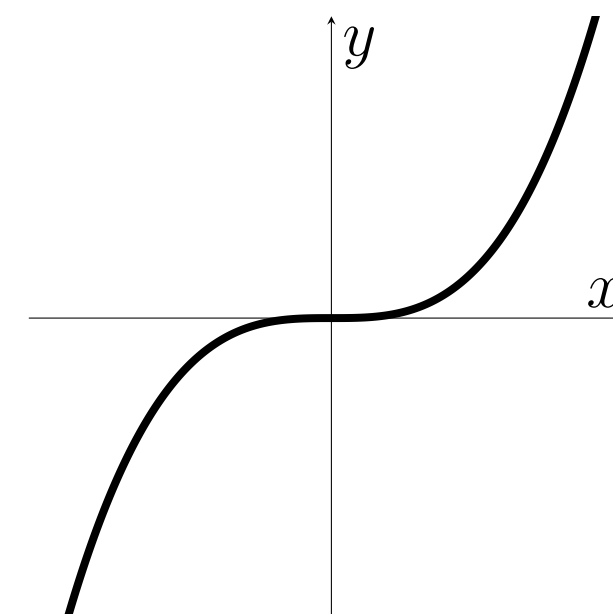
$$y = a(x - b)^2 + c$$

$(a > 0)$



Cubic

$$y = x^3$$



Have an idea for a formula card? E-mail us at mathstat@uoguelph.ca!