Common Derivatives

Name	Function	Derivative
Constant	c	0
Linear	x	1
	ax	a
Square	x^2	$2x$
Square Root	$\sqrt{x}$	$\frac{1}{2} \cdot x^{\frac{1}{2}}$
Exponential	e^x	e^x
	a^x	$\ln(a)\, a^x$
Logarithms	$\ln(x)$	$\frac{1}{x}$
	$\log_a(x)$	$\frac{1}{x \ln(a)}$
Trigonometry	$\sin(x)$	$\cos(x)$
	$\cos(x)$	$-\sin(x)$
	$\tan(x)$	$\sec^2(x)$
	$\cot(x)$	$-\csc^2(x)$
	$\sec(x)$	$\sec(x)\tan(x)$

Special Derivative Rules

Rule	Function	Derivative
Multiply by Constant	cf	cf'
Power Rule	x^n	nx^{n-1}
Sum Rule	$f+g$	$f'+g'$
Product Rule	fg	$fg'+gf'$
Quotient Rule	$\frac{f}{g}$	$\frac{gf'-fg'}{g^2}$
Reciprocal Rule	$\frac{1}{f}$	$-\frac{f}{f^2}$
Chain Rule (Notation 1)	$f \circ g$	$(f' \circ g) \cdot g'$
Chain Rule (Notation 2)	$f(g(x)$	$f'(g(x)) \cdot g'(x)$

Blah

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

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

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

$\frac{d}{dx}(fg) = fg'+gf'$