Average rate of change between two points	Slope of the Secant Line $[a, b]$	$SSL = \frac{f(b) - f(a)}{b - a}$
Rate of change at a point	$f'(x_0) = \lim_{x \to x_0} \frac{f(x) - f(x_0)}{x - x_0}$	$f'(x_0) = \lim_{h \to 0} \frac{f(x_0 + h) - f(x_0)}{h}$
Constant	$a' = 0$	ex : $4' = 0$
Multiplication by constant	$(mx)' = m$	ex : $(3x)' = 3$
Power Rule	$(u^n)' = n \times u^{n-1} \times u'$	ex : $\left((6x)^5\right)' = 5(6x)^4 \times (6x)' = 5(6x)^4 \times 6$
Root	$(\sqrt[n]{u})' = \frac{u'}{n \times \sqrt[n]{u^{n-1}}}$	ex : $(\sqrt{2x})' = \frac{(2x)'}{2 \times \sqrt{2x}} = \frac{1}{\sqrt{2x}}$
Exponential	$(a^u)' = u' \times a^u \times \ln a$	ex : $\left(7^{3x}\right)' = 3 \times 7^{3x} \times \ln 7$
Exponential base e	$(e^u)' = u' \times e^u$	ex : $\left(e^{2x}\right)' = 2 \times e^{2x}$
Sum Rule	$(u + v)' = u' + v'$	ex : $(2x + 5)' = (2x)' + 5' = 2$
Product Rule	$(u \times v)' = u'v + uv'$	ex : $\left(x^2 \times e^x\right) = \left(x^2\right)'e^x + x^2(e^x)' = 2xe^x + x^2e^x$
Quotient Rule	$\left(\frac{u}{v}\right)' = \frac{u'v - uv'}{v^2}$	ex : $\left(\frac{x+1}{2x}\right)' = \frac{(x+1)' \times (2x) - (x+1) \times (2x)'}{(2x)^2}$
Chain Rule	$(gof)' = g'(f) \times f'$	ex : $g(x) = 2x^2; g'(x) = 4x; f(x) = 2x; f'(x) = 2$ $(gof)' = 4(2x) \times 2$
Sine	$(\sin u)' = u' \times \cos u$	ex : $(\sin(6x))' = 6 \times \cos(6x)$
Cosine	$(\cos u)' = -u' \times \sin u$	ex : $(\cos(3x))' = -3 \times \sin(3x)$
Tangent	$(\tan u)' = \frac{u'}{\cos^2 u}$	ex : $(\tan(x))' = \frac{1}{\cos^2 x}$
Logarithms	$(\log_a u)' = \frac{u'}{u \times \ln a}$	ex : $(\log_4(6x))' = \frac{(6x)'}{6x \ln 4} = \frac{6}{6x \ln 4} = \frac{1}{x \ln 4}$
Natural logarithm	$(\ln u)' = \frac{u'}{u}$	ex : $(\ln(5x))' = \frac{(5x)'}{5x} = \frac{5}{5x} = \frac{1}{x}$