Note : In the following formulas, c is a constant, and u is a function in terms of x.

1. $D_x\, c = 0$

2. $D_x[c \times f(x)] = c \times D_x[f(x)]$

3. $D_x\, x^n = nx^{n-1}$

4. $D_x[f(x) \pm g(x)] = f'(x) \pm g'(x)$

5. $D_x[f(x)\, g(x)] = f'(x)\, g(x) + f(x)\, g'(x)$

6. $D_x\left(\dfrac{f(x)}{g(x)}\right) = \dfrac{g(x)\, f'(x) - f(x)\, g'(x)}{[g(x)]^2}$

7. $D_x\left(\dfrac{1}{g(x)}\right) = \dfrac{-g'(x)}{[g(x)]^2}$

$\dfrac{dy}{dx} = \dfrac{\frac{dy}{dt}}{\frac{dx}{dt}}$ if y and x are both functions of t

$\dfrac{d}{dx}\sin u = \cos u \dfrac{du}{dx}$ $\qquad$ $\dfrac{d}{dx}\cos u = -\sin u \dfrac{du}{dx}$

$\dfrac{d}{dx}\tan u = \sec^2 u \dfrac{du}{dx}$ $\qquad$ $\dfrac{d}{dx}\cot u = -\csc^2 u \dfrac{du}{dx}$

$\dfrac{d}{dx}\sec u = \sec u \tan u \dfrac{du}{dx}$ $\qquad$ $\dfrac{d}{dx}\csc u = -\csc u \cot u \dfrac{du}{dx}$

$D_x \sin^{-1} u = \dfrac{1}{\sqrt{1-u^2}} \dfrac{du}{dx}$ $\qquad$ $D_x \cos^{-1} u = \dfrac{-1}{\sqrt{1-u^2}} \dfrac{du}{dx}$

$D_x \tan^{-1} u = \dfrac{1}{1+u^2} \dfrac{du}{dx}$ $\qquad$ $D_x \cot^{-1} u = \dfrac{-1}{1+u^2} \dfrac{du}{dx}$

$D_x \sec^{-1} u = \dfrac{1}{|u|\sqrt{u^2-1}} \dfrac{du}{dx}$ $\qquad$ $D_x \csc^{-1} u = \dfrac{-1}{|u|\sqrt{u^2-1}} \dfrac{du}{dx}$

$\dfrac{d}{dx}\ln u = \dfrac{1}{u} \dfrac{du}{dx}$ $\qquad$ $\dfrac{d}{dx}\log_a u = \dfrac{1}{u \ln a} \dfrac{du}{dx}$

$\dfrac{d}{dx} e^u = e^u \dfrac{du}{dx}$ $\qquad$ $\dfrac{d}{dx} a^u = a^u (\ln a) \dfrac{du}{dx}$