Original Rule	Generalized Rule (Chain Rule)
$\frac{d}{dx}\sin x = \cos x$	$\frac{d}{dx}\sin \mathbf{u} = \cos \mathbf{u}\ \frac{du}{dx}$
$\frac{d}{dx}\cos x = -\sin x$	$\frac{d}{dx}\cos \mathbf{u} = -\sin \mathbf{u}\ \frac{du}{dx}$
$\frac{d}{dx}\tan x = \sec^2 x$	$\frac{d}{dx}\tan \mathbf{u} = \sec^2 \mathbf{u}\ \frac{du}{dx}$
$\frac{d}{dx}\operatorname{cotan} x = -\operatorname{cosec}^2 x$	$\frac{d}{dx}\operatorname{cotan} \mathbf{u} = -\operatorname{cosec}^2 \mathbf{u}\ \frac{du}{dx}$
$\frac{d}{dx}\sec x = \sec x \tan x$	$\frac{d}{dx}\sec \mathbf{u} = \sec \mathbf{u} \tan \mathbf{u}\ \frac{du}{dx}$
$\frac{d}{dx}\operatorname{cosec} x = -\operatorname{cosec} x \operatorname{cotan} x$	$\frac{d}{dx}\operatorname{cosec} \mathbf{u} = -\operatorname{cosec} \mathbf{u} \operatorname{cotan} \mathbf{u}\ \frac{du}{dx}$

$$\frac{d}{dx}\left(\sin^{-1} x\right) = \frac{1}{\sqrt{1-x^2}} \qquad \frac{d}{dx}\left(\cos^{-1} x\right) = -\frac{1}{\sqrt{1-x^2}}$$

$$\frac{d}{dx}\left(\tan^{-1} x\right) = \frac{1}{1+x^2} \qquad \frac{d}{dx}\left(\cot^{-1} x\right) = -\frac{1}{1+x^2}$$

$$\frac{d}{dx}\left(\sec^{-1} x\right) = \frac{1}{x\sqrt{x^2-1}} \qquad \frac{d}{dx}\left(\csc^{-1} x\right) = -\frac{1}{x\sqrt{x^2-1}}$$

$$(c^x)' = c^x \ln c, \qquad c > 0$$

$$(e^x)' = e^x$$

$$(\log_c x)' = \frac{1}{x \ln c}, \qquad c > 0, c \neq 1$$

$$(\ln x)' = \frac{1}{x}, \qquad x > 0$$

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