LA DERIVADA

$\forall\, u = f(x)$, $\forall\, v = g(x)$, $\forall\, c$, e , $n \in \mathbb{R}$, $a \in \mathbb{R}^{+} - \{1\}$, $e = 2.7182818284\ 5904523536\ 0287471352\ \ldots$

1. $\frac{d}{dx}(c) = 0$
2. $\frac{d}{dx}(x) = 1$
3. $\frac{d}{dx}(cu) = c\frac{d}{dx}(u)$
4. $\frac{d}{dx}(u \pm v) = \frac{d}{dx}(u) \pm \frac{d}{dx}(v)$
5. $\frac{d}{dx}(uv) = u\frac{d}{dx}(v) + v\frac{d}{dx}(u)$
6. $\frac{d}{dx}\left(\frac{u}{v}\right) = \frac{v\frac{d}{dx}(u) - u\frac{d}{dx}(v)}{v^2}$
7. $\frac{d}{dx}(u^n) = nu^{n-1}\frac{d}{dx}(u)$
8. $\frac{d}{dx}(u^v) = vu^{v-1}\frac{d}{dx}(u) + u^v ln(u)\frac{d}{dx}(v)$
9. $\frac{d}{dx}(a^u) = a^u ln(a)\frac{d}{dx}(u)$
10. $\frac{d}{dx}(e^u) = e^u\frac{d}{dx}(u)$
11. $\frac{d}{dx}(|u|) = \frac{u}{|u|}\ \frac{d}{dx}(u)$
12. $\frac{d}{dx}\left(log_a(u)\right) = \frac{1}{u\ ln(a)}\ \frac{d}{dx}(u)$
13. $\frac{d}{dx}\left(ln(u)\right) = \frac{1}{u}\ \frac{d}{dx}(u)$
14. $\frac{d}{dx}cos(u) = -sen(u)\frac{d}{dx}(u)$
15. $\frac{d}{dx}tan(u) = sec^2(u)\frac{d}{dx}(u)$
16. $\frac{d}{dx}cot(u) = -csc^2(u)\frac{d}{dx}(u)$
17. $\frac{d}{dx}sec(u) = sec(u)tan(u)\frac{d}{dx}(u)$
18. $\frac{d}{dx}csc(u) = -csc(u)cot(u)\frac{d}{dx}(u)$
19. $\frac{d}{dx}arcsen(u) = \frac{1}{\sqrt{1-u^2}}\ \frac{d}{dx}(u)$
20. $\frac{d}{dx}arccos(u) = \frac{-1}{\sqrt{1-u^2}}\ \frac{d}{dx}(u)$
21. $\frac{d}{dx}arctan(u) = \frac{1}{1+u^2}\ \frac{d}{dx}(u)$
22. $\frac{d}{dx}arccot(u) = \frac{-1}{1+u^2}\ \frac{d}{dx}(u)$
23. $\frac{d}{dx}arcsec(u) = \frac{1}{u\sqrt{u^2-1}}\frac{d}{dx}(u)$
24. $\frac{d}{dx}arccsc(u) = \frac{\text{-}1}{u\sqrt{u^2\text{-}1}}\frac{d}{dx}(u)$

Regla de la Cadena

$$\frac{d}{dx}(y) = \frac{d}{du}(y)\frac{d}{dx}(u)$$

Definición de Derivada de una Función

$$\frac{d}{dx}(y) = \lim_{\Delta x \to 0}\ \frac{f(x+\Delta x) - f(x)}{\Delta x}$$

Notaciones de la Derivada

$$\frac{d}{dx}(y) = \frac{d}{dx}f(x) = y' = f'(x) = D_x y$$