



Reglas de derivación

Sean $\mathbf{u} = \mathbf{u}(\mathbf{x})$, $\mathbf{v} = \mathbf{v}(\mathbf{x})$ dos funciones en x . $\mathbf{u}' = \frac{d\mathbf{u}}{dx}$ y $\mathbf{v}' = \frac{d\mathbf{v}}{dx}$ sus respectivas derivadas respecto a x y, sea $\mathbf{k} \in \mathbb{R}$ una constante. Entonces:

1. $(\mathbf{k})' = 0$
2. $(\mathbf{k}\mathbf{u})' = \mathbf{k}\mathbf{u}'$
3. $(\mathbf{u} \pm \mathbf{v})' = \mathbf{u}' \pm \mathbf{v}'$
4. $(\mathbf{u}\mathbf{v})' = \mathbf{u}'\mathbf{v} + \mathbf{u}\mathbf{v}'$
5. $\left(\frac{\mathbf{u}}{\mathbf{v}}\right)' = \frac{\mathbf{u}'\mathbf{v} - \mathbf{u}\mathbf{v}'}{\mathbf{v}^2}$
6. $(\mathbf{u}^{\mathbf{v}})' = \mathbf{u}^{\mathbf{v}} \left(\mathbf{v}' \ln \mathbf{u} + \frac{\mathbf{v}}{\mathbf{u}} \mathbf{u}' \right)$

Derivada de funciones básicas

En esta sección se considera a $\mathbf{u}' = \frac{d\mathbf{u}}{dx}$ como la derivada interna de la función que se deriva.

1. $(u^n)' = nu^{n-1} \cdot \mathbf{u}'$, n una constante.
2. $(a^u)' = a^u \ln(a) \cdot \mathbf{u}'$, a una constante.
3. $(\log_a u)' = \frac{\mathbf{u}' \ln a}{u}$
4. $(\operatorname{sen} u)' = \cos u \cdot \mathbf{u}'$
5. $(\cos u)' = -\operatorname{sen} u \cdot \mathbf{u}'$
6. $(\tan u)' = \sec^2 u \cdot \mathbf{u}'$
7. $(\cot u)' = -\csc^2 u \cdot \mathbf{u}'$
8. $(\sec u)' = \sec u \tan u \cdot \mathbf{u}'$
9. $(\csc u)' = -\csc u \cot u \cdot \mathbf{u}'$
10. $(\operatorname{sen}^{-1} u)' = \frac{\mathbf{u}'}{\sqrt{1-u^2}}$
11. $(\tan^{-1} u)' = \frac{\mathbf{u}'}{1+u^2}$
12. $(\sec^{-1} u)' = \frac{\mathbf{u}'}{|u|\sqrt{u^2-1}}$