Fórmulas de Derivadas

1. $\frac{d}{dx}[c] = 0$ cualquier número c
2. $\frac{d}{dx}[x] = 1$
3. $\frac{d}{dx}[x^n] = nx^{n-1}$
4. $\frac{d}{dx}[c \cdot x^n] = c \cdot \frac{d}{dx}[x^n] = cnx^{n-1}$
5. $\frac{d}{dx}[u \pm v] = u' \pm v'$
6. $\frac{d}{dx}[u \cdot v] = uv' + vu'$
7. $\frac{d}{dx}\left[\frac{u}{v}\right] = \frac{vu' - uv'}{v^2}$
8. $\frac{d}{dx}[u^n] = nu^{n-1} \cdot u'$
9. $\frac{d}{dx}[c \cdot u^n] = c\frac{d}{dx}[u^n] = cnu^{n-1} \cdot u'$
10. $\frac{d}{dx}[\operatorname{sen} u] = \cos u \cdot u'$
11. $\frac{d}{dx}[\cos u] = -\operatorname{sen} u \cdot u'$
12. $\frac{d}{dx}[\tan u] = \sec^2 u \cdot u'$
13. $\frac{d}{dx}[\cot u] = -\csc^2 u \cdot u'$
14. $\frac{d}{dx}[\sec u] = \sec u \cdot \tan u \cdot u'$
15. $\frac{d}{dx}[\csc u] = -\csc u \cdot \cot u \cdot u'$
16. $\frac{d}{dx}[\operatorname{arcsen} u] = \frac{u'}{\sqrt{1-u^2}}$
17. $\frac{d}{dx}[\arccos u] = \frac{-u'}{\sqrt{1-u^2}}$
18. $\frac{d}{dx}[\arctan u] = \frac{u'}{1+u^2}$
19. $\frac{d}{dx}[\operatorname{arcctg} u] = \frac{-u'}{1+u^2}$
20. $\frac{d}{dx}[\operatorname{arcsec} u] = \frac{u'}{u\sqrt{u^2-1}}$
21. $\frac{d}{dx}[\operatorname{arccsc} u] = \frac{-u'}{u\sqrt{u^2-1}}$
22. $\frac{d}{dx}[a^u] = a^u \ln a \cdot u'$
23. $\frac{d}{dx}[e^u] = e^u \cdot u'$
24. $\frac{d}{dx}[\log_a u] = \frac{u'}{u \ln a}$
25. $\frac{d}{dx}[\ln u] = \frac{u'}{u}$
26. $\frac{d}{dx}[\operatorname{senh} u] = \cosh u \cdot u'$
27. $\frac{d}{dx}[\cosh u] = \operatorname{senh} u \cdot u'$
28. $\frac{d}{dx}[\tanh u] = \operatorname{sech}^2 u \cdot u'$
29. $\frac{d}{dx}[\operatorname{ctgh} u] = -\operatorname{csch}^2 u \cdot u'$
30. $\frac{d}{dx}[\operatorname{sech} u] = -\operatorname{sech} u \cdot \tanh u \cdot u'$
31. $\frac{d}{dx}[\operatorname{csch} u] = -\operatorname{csch} u \cdot \operatorname{ctgh} u \cdot u'$
32. $\frac{d}{dx}[\operatorname{senh}^{-1} u] = \frac{u'}{\sqrt{u^2+1}}$
33. $\frac{d}{dx}[\cosh^{-1} u] = \frac{u'}{\sqrt{u^2-1}}$
34. $\frac{d}{dx}[\tanh^{-1} u] = \frac{u'}{1-u^2}$
35. $\frac{d}{dx}[\operatorname{ctgh}^{-1} u] = \frac{u'}{1-u^2}$
36. $\frac{d}{dx}[\operatorname{sech}^{-1} u] = \frac{-u'}{u\sqrt{1-u^2}}$
37. $\frac{d}{dx}[\operatorname{csch}^{-1} u] = \frac{-u'}{u\sqrt{1+u^2}}$

1. Identidades trigonométricas

1. $\operatorname{sen} x = \frac{1}{\csc x}$
2. $\sec x = \frac{1}{\cos x}$
3. $\tan x = \frac{1}{\cot x}$
4. $\csc x = \frac{1}{\operatorname{sen} x}$
5. $\cos x = \frac{1}{\sec x}$
6. $\cot x = \frac{1}{\tan x}$
7. $\tan x = \frac{\operatorname{sen} x}{\cos x}$
8. $\cot x = \frac{\cos x}{\operatorname{sen} x}$
9. $\operatorname{sen}^2 x + \cos^2 x = 1$
10. $1 + \tan^2 x = \sec^2 x$
11. $1 + \cot^2 x = \csc^2 x$
12. $\cos^2 u = \frac{1 + \cos 2u}{2}$
13. $\operatorname{sen}^2 u = \frac{1 - \cos 2u}{2}$
14. $\tan^2 u = \frac{1 - \cos 2u}{1 + \cos 2u}$
15. $\cos 2u = \cos^2 u - \operatorname{sen}^2 u = 1 - 2\operatorname{sen}^2 u = 2\cos^2 u - 1$

16. $\operatorname{sen} 2u = 2\operatorname{sen} u \cos u$

17. $\tan 2u = \dfrac{2\tan u}{1-\tan^2 u}$

18. $\operatorname{sen}(\cos^{-1} x) = \sqrt{1-x^2}$

20. $\sec(\tan^{-1} x) = \sqrt{1+x^2}$

19. $\cos(\operatorname{sen}^{-1} x) = \sqrt{1-x^2}$

21. $\tan(\sec^{-1} x) = \begin{cases} \sqrt{x^2-1} & \text{si } x \geq 1, \\ -\sqrt{x^2-1} & \text{si } x \leq 1 \end{cases}$

22. $\cos A \cos B = \frac{1}{2}\cos[A-B] + \frac{1}{2}\cos[A+B]$

24. $\operatorname{sen} A \cos B = \frac{1}{2}\operatorname{sen}[A-B] + \frac{1}{2}\operatorname{sen}[A+B]$

23. $\operatorname{sen} A \cos B = \frac{1}{2}\cos[A-B] - \frac{1}{2}\cos[A+B]$

25. $\operatorname{sen}[-\theta] = -\operatorname{sen}[\theta]$

26. $\cos[-\theta] = \cos[\theta]$

27. $\cos[n\pi] = [-1]^n$

28. $\operatorname{sen}[n\pi] = 0$

29. $\operatorname{senh} x = \dfrac{e^x - e^{-x}}{2}$

31. $\tanh x = \dfrac{\operatorname{senh} x}{\cosh x}$

33. $\operatorname{sech} x = \dfrac{1}{\cosh x}$

30. $\cosh x = \dfrac{e^x + e^{-x}}{2}$

32. $\operatorname{csch} x = \dfrac{1}{\operatorname{senh} x}$

34. $\coth x = \dfrac{\cosh x}{\operatorname{senh} x}$

Radicales

35. $\sqrt[n]{a^m} = a^{\frac{m}{n}}$

36. $\sqrt[n]{ab} = \sqrt[n]{a}\sqrt[n]{b}$

37. $\sqrt[n]{\dfrac{a}{b}} = \dfrac{\sqrt[n]{a}}{\sqrt[n]{b}}$

38. $\sqrt[m]{\sqrt[n]{a}} = \sqrt[mn]{a}$

Exponentes

39. $a^n = a \cdot a \cdot a \cdots a$

40. $a^0 = 1$

41. $a^{-n} = \dfrac{1}{a^n}$

42. $a^m a^n = a^{m+n}$

43. $\dfrac{a^m}{a^n} = a^{m-n}$

44. $(a^m)^n = a^{mn}$

45. $(ab)^n = a^n b^n$

46. $\left(\dfrac{a}{b}\right)^n = \dfrac{a^n}{b^n}$

Logaritmos

47. $\ln(1) = 0$

48. $\ln xy = \ln x + \ln y$

49. $\ln \dfrac{x}{y} = \ln x - \ln y$

50. $\ln x^p = p \ln x$

51. $\ln(e) = 1$

52. $\ln(e^x) = x\ln(e) = x(1) = x$

53. $e^{\ln x} = x$