

Formulas for Derivatives

1. $c' = 0$

2. $x' = 1$

3. $(x^n)' = nx^{n-1}$

4. $(cf(x))' = cf'(x)$

5. $(f(x) \pm g(x))' = f'(x) \pm g'(x)$

6. $(f(x)g(x))' = f'(x)g(x) + f(x)g'(x)$

7. $\left(\frac{f(x)}{g(x)}\right)' = \frac{f'(x)g(x) - f(x)g'(x)}{g(x)^2}$

8. $(\sin(x))' = \cos(x)$

9. $(\cos(x))' = -\sin(x)$

10. $(\tan(x))' = \sec^2(x)$

11. $(\cot(x))' = -\csc^2(x)$

12. $(\sec(x))' = \sec(x) \tan(x)$

13. $(\csc(x))' = -\csc(x) \cot(x)$

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

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

16. $[f(g(x))]' = f'(g(x))g'(x)$

17. $\frac{dy}{dx} = \frac{dy}{du} \frac{du}{dx}$

18. $\forall r \in \mathbb{R}, \quad (x^r)' = rx^{r-1}$

19. $(a^x)' = \ln(a)a^x$

20. $(\log_a(x))' = \frac{1}{\ln(a)x}$

21. $(\sin^{-1}(x))' = \frac{1}{\sqrt{1-x^2}}$

22. $(\cos^{-1}(x))' = \frac{-1}{\sqrt{1-x^2}}$

23. $(\tan^{-1}(x))' = \frac{1}{1+x^2}$

24. $(\cot^{-1}(x))' = \frac{-1}{1+x^2}$

25. $(\sec^{-1}(x))' = \frac{1}{|x|\sqrt{x^2-1}}$

26. $(\csc^{-1}(x))' = \frac{-1}{|x|\sqrt{x^2-1}}$