Règles de dérivation

1. $\frac{d}{dx}\, k = 0 \qquad (k \in \mathbf{R})$

2. $\frac{d}{dx}\, x^n = nx^{n-1} \qquad (n \in \mathbf{R})$

3. $\frac{d}{dx}\, kg(x) = k \frac{d}{dx}\, g(x) \qquad (k \in \mathbf{R})$

4. $\frac{d}{dx}\, [g(x) + h(x)] = \frac{d}{dx}\, g(x) + \frac{d}{dx}\, f(x)$

5. $\frac{d}{dx}\, [g(x).h(x)] = g(x) \frac{d}{dx}\, h(x) + h(x) \frac{d}{dx}\, g(x)$

6. $\frac{d}{dx} \left[\frac{g(x)}{h(x)} \right] = \frac{h(x) \frac{d}{dx} g(x) - g(x) \frac{d}{dx} h(x)}{[h(x)]^2}$

7. Soit $y = g(h(x))$, le résultat de la composition de $\begin{cases} y = g(u) \\ u = h(x) \end{cases}$

   $\frac{dy}{dx} = \frac{dy}{du} \cdot \frac{du}{dx}$

8. $\frac{d}{dx}\, \big(g(x)\big)^n = n\big(g(x)\big)^{n-1} \cdot \frac{d}{dx}\, g(x) \qquad (n \in \mathbf{R})$

9. $\frac{dy}{dx} = \frac{1}{\frac{dx}{dy}} \qquad (\text{si } \frac{dy}{dx} \text{ existe et } \frac{dy}{dx} \neq 0)$

10. $\frac{d}{dx}\, e^{g(x)} = e^{g(x)} \cdot \frac{d}{dx}\, g(x)$

11. $\frac{d}{dx}\, \ln g(x) = \frac{1}{g(x)} \cdot \frac{d}{dx}\, g(x)$

12. $\frac{d}{dx}\, b^{g(x)} = b^{g(x)} \cdot \frac{d}{dx}\, g(x) \qquad (b > 0 \text{ et } b \neq 1)$

13. $\frac{d}{dx}\, \log_b g(x) = \frac{1}{g(x)} \cdot \ln b \cdot \frac{d}{dx}\, g(x) \qquad (b > 0 \text{ et } b \neq 1)$

14. $\frac{d}{dx}\, \sin f(x) = \cos f(x) \cdot \frac{d}{dx}\, f(x)$

15. $\frac{d}{dx}\, \cos f(x) = - \sin f(x) \cdot \frac{d}{dx}\, f(x)$

16. $\frac{d}{dx}\, \tan f(x) = \sec^2 f(x) \cdot \frac{d}{dx}\, f(x)$

17. $\frac{d}{dx}\, \cot f(x) = - \csc^2 f(x) \cdot \frac{d}{dx}\, f(x)$

18. $\frac{d}{dx}\, \sec f(x) = \sec f(x) \tan f(x) \cdot \frac{d}{dx}\, f(x)$

19. $\frac{d}{dx}\, \csc f(x) = - \csc f(x) \cot f(x) \cdot \frac{d}{dx}\, f(x)$

20. $\frac{d}{dx}\, \arcsin f(x) = \frac{1}{\sqrt{1 - f(x)^2}} \cdot \frac{d}{dx}\, f(x)$

21. $\frac{d}{dx}\, \arccos f(x) = \frac{-1}{\sqrt{1 - f(x)^2}} \cdot \frac{d}{dx}\, f(x)$

22. $\frac{d}{dx}\, \arctan f(x) = \frac{1}{1 + f(x)^2} \cdot \frac{d}{dx}\, f(x)$

23. $\frac{d}{dx}\, \operatorname{arccot} f(x) = \frac{-1}{1 + f(x)^2} \cdot \frac{d}{dx}\, f(x)$

24. $\frac{d}{dx}\, \operatorname{arcsec} f(x) = \frac{1}{f(x) \sqrt{f(x)^2 - 1}} \cdot \frac{d}{dx}\, f(x)$

25. $\frac{d}{dx}\, \operatorname{arccsc} f(x) = \frac{-1}{f(x) \sqrt{f(x)^2 - 1}} \cdot \frac{d}{dx}\, f(x)$