Regras de derivação

Na lista de derivadas que se segue, omitem-se os domínios das funções.

1. $\mathcal{C}' = 0$, sendo $\mathcal{C}$ uma constante

2. $(kf(x))' = kf'(x)$ $(k \in \mathbb{R})$

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

4. $(f^\alpha(x))' = \alpha f^{\alpha-1}(x)f'(x)$ $(\alpha \in \mathbb{R})$

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

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

7. $(f \circ g)'(x) = f'(g(x))\, g'(x)$

8. $(f^{-1})'(x) = \dfrac{1}{f'(f^{-1}(x))}$

9. $(e^{f(x)})' = f'(x)\, e^{f(x)}$

10. $(\ln f(x))' = \dfrac{f'(x)}{f(x)}$

11. $(a^{f(x)})' = f'(x)\, a^{f(x)} \ln a$

12. $(\log_a f(x))' = \dfrac{f'(x)}{f(x)} \log_a e$

13. $((f(x))^{g(x)})' = g(x)(f(x))^{g(x)-1}f'(x) + g'(x)(f(x))^{g(x)} \ln f(x)$

14. $(\text{sen} f(x))' = f'(x) \cos f(x)$

15. $(\cos f(x))' = -f'(x) \,\text{sen} f(x)$

16. $(\text{tg} f(x))' = \dfrac{f'(x)}{\cos^2 f(x)}$

17. $(\text{cotg} f(x))' = \dfrac{-f'(x)}{\text{sen}^2 f(x)}$

18. $(\text{sh} f(x))' = f'(x) \,\text{ch} f(x)$

19. $(\text{ch} f(x))' = f'(x) \,\text{sh} f(x)$

20. $(\text{th} f(x))' = \dfrac{f'(x)}{\text{ch}^2 f(x)}$

21. $(\text{coth} f(x))' = \dfrac{-f'(x)}{\text{sh}^2 f(x)}$

22. $(\text{arcsen} f(x))' = \dfrac{f'(x)}{\sqrt{1 - f^2(x)}}$

23. $(\arccos f(x))' = \dfrac{-f'(x)}{\sqrt{1 - f^2(x)}}$

24. $(\text{arctg} f(x))' = \dfrac{f'(x)}{1 + f^2(x)}$

25. $(\text{arccotg} f(x))' = \dfrac{-f'(x)}{1 + f^2(x)}$

26. $(\text{argsh} f(x))' = \dfrac{f'(x)}{\sqrt{1 + f^2(x)}}$

27. $(\text{argch} f(x))' = \dfrac{f'(x)}{\sqrt{f^2(x) - 1}}$

28. $(\text{argth} f(x))' = \dfrac{f'(x)}{1 - f^2(x)}$

29. $(\text{argcoth} f(x))' = \dfrac{f'(x)}{1 - f^2(x)}$