

Lista de exercícios de derivadas de funções compostas
para monitoria de cálculo 2

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1. $f(x) = 10(3x^2 + 7x - 3)^{10}$
2. $f(x) = \frac{1}{3}(2x^5 + 6x^{-3})^5$
3. $f(x) = \frac{1}{a}(bx^2 + ax)^3$
4. $f(x) = (3x^2 + 6x)^{10} - \frac{1}{x^2}$
5. $f(t) = (7t^2 + 6t)^7(3t - 1)^4$
6. $f(x) = (5x - 2)^6(3x - 1)^3$
7. $f(t) = \left(\frac{7t + 1}{2t^2 + 3}\right)^3$
8. $f(x) = (2x - 5)^4 + \frac{1}{x + 1} - \sqrt{x}$
9. $f(x) = \sqrt[3]{(3x^2 + 6x - 2)^2}$
10. $f(t) = (4t^2 - 5t + 2)^{-1/3}$
11. $f(x) = \frac{2x}{\sqrt{3x - 1}}$
12. $f(x) = \frac{7x^2}{2\sqrt[5]{3x + 1}} + \sqrt{3x + 1}$
13. $f(t) = \sqrt{\frac{2t + 1}{t - 1}}$
14. $f(x) = 2e^{3x^2 + 6x + 7}$
15. $f(x) = \frac{1}{3}e^{3 - x}$
16. $f(x) = e^{\sqrt{x}}$
17. $f(x) = 2^{3x^2 + 6x}$
18. $f(x) = \left(\frac{1}{2}\right)^{-\ln 2x}$
19. $f(s) = (7s^2 + 6s - 1)^3 + 2e^{-3s}$
20. $f(t) = \frac{e^{-t^2} + 1}{t}$
21. $f(t) = e^{\sqrt{t}}(t^2 + 5t)$
22. $f(t) = \frac{\sqrt{e^t - 1}}{\sqrt{e^t + 1}}$
23. $f(x) = \log_2(2x + 4)$
24. $f(x) = \frac{1}{a}(bx^2 + c) - \ln x$
25. $f(s) = \log_3 \sqrt{s + 1}$
26. $f(x) = \frac{1}{2} \ln(7x^2 - 4)$

Respostas:

1. $100(3x^2 + 7x - 3)^9(6x + 7)$
2. $\frac{10}{3}(2x^5 + 6x^{-3})^4(5x^4 - 9x^{-4})$
3. $\frac{3}{a}(bx^2 + ax)^2(2bx + a)$
4. $60(3x^2 + 6x)^9(x + 1) + \frac{2}{x^3}$
5. $(7t^2 + 6t)^6(3t - 1)^3[12(7t^2 + 6t) + 7(3t - 1)(14t + 6)]$
6. $(5x - 2)^5(3x - 1)^2(135x - 48)$
7. $\frac{3(7t + 1)^2(-14t^2 - 4t + 21)}{(2t^2 + 3)^4}$
8. $8(2x - 5)^3 - \frac{1}{(x + 1)^2} - \frac{1}{2\sqrt{x}}$
9. $\frac{4(x + 1)}{\sqrt[3]{3x^2 + 6x - 2}}$
10. $-\frac{1}{3}(4t^2 - 5t + 2)^{-4/3}(8t - 5)$
11. $\frac{3x - 2}{(3x - 1)\sqrt{3x - 1}}$
12. $-\frac{21}{10}x^2(3x + 1)^{-6/5} + 7x(3x + 1)^{-1/5} + \frac{3}{2}(3x + 1)^{-1/2}$
13. $\frac{-3}{2(t - 1)^{3/2}(2t + 1)^{1/2}}$
14. $12e^{3x^2 + 6x + 7}(x + 1)$
15. $-\frac{1}{3}e^{3-x}$
16. $\frac{e^{\sqrt{x}}}{2\sqrt{x}}$
17. $2^{3x^2 + 6x}6(x + 1)\ln 2$
18. $\frac{2^{\ln 2x} \ln 2}{x}$
19. $6[(7s^2 + 6s - 1)^2(7s + 3) - e^{-3s}]$
20. $\frac{-2t^2 e^{-t^2} - e^{-t^2} - 1}{t^2}$
21. $e^{t/2}(1/2t^2 + 9/2t + 5)$
22. $\sqrt{\frac{e^t + 1}{e^t - 1}} \cdot \frac{e^t}{(e^t + 1)^2}$
23. $\frac{2}{2x + 4} \log_2 e$
24. $\frac{2bx^2 - a}{ax}$
25. $\frac{\log_3 e}{2(s + 1)}$
26. $\frac{7x}{7x^2 - 4}$