

MORE DERIVATIVE PRACTICE

Find the indicated derivative in each case. Simplify your answers if you can.

1. $f'(t)$ for $f(t) = \frac{t}{\sqrt{t^3+1}}$

2. $h'(y)$ for $h(y) = \frac{\ln y}{1 - \ln y}$

3. $f'(x)$ for $f(x) = \frac{x^2 + bx + c}{a}$

4. $\frac{dz}{dm}$ for $z = \log(10^{2m})$

5. $\frac{dz}{dx}$ for $z = (x+1)^3(5-x)^4$

6. $f'(x)$ for $f(x) = \sinh(x^2 + 1)$

7. $f'(m)$ for $f(m) = \frac{1}{\sec(2m)}$

8. $f'(t)$ for $f(t) = \sin^{-1}\left(\frac{2}{t}\right)$

9. $f''(x)$ for $f(x) = 3x \cdot 2^{5x}$

10. $g'(\theta)$ for $g(\theta) = \sqrt[3]{\tan(5\theta)}$

11. $f'(\Gamma)$ for $f(\Gamma) = \frac{\beta\Gamma + \Gamma^6}{1 - \beta}$

12. $f'(x)$ for $f(x) = x \cos(\sqrt[3]{x} + 1)$

13. $\frac{dy}{dt}$ for $y = \ln \sqrt{5 + x^2}$

14. $\frac{dy}{du}$ for $y = (\cot 1 + \cot u)^\pi$

15. $g'(x)$ for $g(x) = |x \cdot e^x|$

16. $g'(z)$ for $g(z) = \frac{e^{az}}{a^2 + z^2}$

17. $x'(r)$ for $x(r) = \sqrt{3r} + 3\sqrt{r} - \sqrt{\frac{3}{r}} + \sqrt{3}$

18. $f'(x)$ for $f(x) = \frac{ax^2}{(2-x)^3}$