

3.5—Practice with differentiation rules

Find the derivative of each function. Simplify your final answer. In some cases, it may be useful to simplify/rewrite the function before differentiating.

1. $y = \frac{1}{4 \sin(x-3)}$

2. $y = (4t-3)^{-8}$

3. $f(\theta) = \theta + 2 \tan \sqrt[3]{\theta}$

4. $g(z) = \sqrt[3]{2z-1}$

5. $h(\alpha) = (4\alpha \cos \alpha)^2$

6. $y = (4x^3 - 5x^2 + 10x - 13)^3$

7. $f(x) = 3(2e^{5x})^3(x-1)^4$

8. $g(t) = \frac{(t-3)^2}{\sqrt{t+1}}$

9. $y = \left(\frac{4^{2x-1}}{3-x} \right)^3$