

1. Find the derivative of  $f(x) = \sec(x^4) \ln(9x - 8)$ .

2. Find the derivative of  $g(x) = \sqrt{3x} - (\tan(7x))^{-1}$ .

3. Find the derivative of  $h(t) = \frac{t \cos(t^2)}{\ln(\tan(t))}$ .

4. Find  $\frac{d}{dx} \frac{e^{-3x}}{\csc(5x^3)}$ .

5. Find  $\frac{d}{dx} 3^{\cot(7x)}$ .

6. Find  $\frac{d}{dr} \sin^{-1}(\sqrt{r})$ .

7. Find  $\frac{d}{dx} \ln(x - 2) \tan^{-1}(3x)$ .

8. Find  $\frac{d}{dz} z \csc^{-1}(e^{3z})$ .

9. Find  $\frac{d}{ds} 3 \log_5(s + 1)$ .

10. Find  $\frac{d}{dx} x^{3x-1}$ .

11. Find  $\frac{d}{dx} \frac{2^{x^2-1}}{\cos^{-1}(4x)}$ .

12. Find  $\frac{d}{dx} \frac{x^e}{\cos^{-1}(4x)}$ .