

Exercises

1. Find the derivative:

- (a) $2x^5$
- (b) $\ln(2x^5)$
- (c) e^{x-4}
- (d) e^{x^2}
- (e) $\tan(x)$

2. Find the derivative using the product rule:

- (a) $x \sin(x)$
- (b) $\ln(x^{2x})$
- (c) xe^x
- (d) $\cos(x)(x+5)^2$

3. Find the derivative using the quotient rule:

- (a) $\frac{x^2}{\sin(x)}$
- (b) $\frac{e^5 x}{x^2 + 2x - 9}$
- (c) $\cot(x)$
- (d) $\frac{\ln(x)}{xe^{2x}}$

4. Find the derivative using the chain rule:

- (a) $\cos(3x^2)$
- (b) $\sin(\ln(x))$
- (c) $\ln(\sec(x))$
- (d) $\sin(x^2 + 2x)$