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) $\dfrac{x^2}{\sin(x)}$

   (b) $\dfrac{e^5 x}{x^2 + 2x - 9}$

   (c) $\cot(x)$

   (d) $\dfrac{\ln(x)}{xe^{2x}}$

4. **Find the derivative using the chain rule:**

   (a) $\cos(3x^2)$

   (b) $\sin(\ln(x))$

   (c) $\ln(\sec(x))$

   (d) $\sin(\tan(x) + 2x)$