1. Explain the relationship between the function, \( f(x) \), and its derivative, \( f'(x) \).

2. Explain in your own words how you would find the derivative of \( f(x) = x^3 \).

3. Explain in your own words how the product rule works by showing how you would find the derivative of \( f(x) = x^2 e^x \).

4. Explain in your own words how the quotient rule works by showing how you would find the derivative of \( f(x) = \frac{x^2}{2x^3 + 1} \).

5. Explain in your own words how the chain rule works by showing how you would find the derivative of \( f(x) = (x^4 + 2)^5 \).