

Finding the Pattern

Name:

Instructions. Differentiate each function using the power rule, product rule, quotient rule, and whatever algebraic techniques you find helpful.

Goal. Try to find a pattern that we can use to quickly and correctly differentiate “composite functions”.

1. $f(x) = (3x - 5)^2$

2. $f(x) = (x^3 + 4)^2$

3. $f(x) = (\sqrt{x} + 5)^2$

4. $f(x) = (\sin x)^2$

Based on your work above, describe a way to quickly find the derivative of functions of the form:

$$(\text{Stuff on the Inside})^{\text{Some Exponent}}$$