

Quiz 3

1. Use logarithmic differentiation to find $f'(e)$ where $f(x) = x^x$. (6 pts.)
Show all work for full credit, but if you happen to remember the derivative of f from lecture you can still get partial credit if you forgot how to derive it!

2. Use implicit differentiation to find dy/dx if (6 pts.)

$$y^2 + 2xy + 3 = 0.$$

3. Recall that $(\ln(x))' = 1/x$. Calculate $f'(x)$ using either the chain rule or first using properties of logs to simplify where (8 pts.)

$$f(x) = \ln\left(\frac{x^2}{3x^2 - 1}\right).$$