HW 12: Section 2.7

Due: Monday, October 21st in SQRC by 9pm

Learning Goals:

- Take the derivative of exponential and logarithmic functions.
- Use all of our integration rules together: power rule, chain rule, product rule, trig functions.
- Practice using logarithmic differentiation.

Compute the derivative of

1. Problem 2.7.4 Compute the derivative of $f(t) = t4^{3t}$
2. Problem 2.7.6 Compute the derivative of $f(x) = (1/e)^x$
3. Problem 2.7.10 Compute the derivative of $f(u) = 3e^{\tan(u)}$
4. Problem 2.7.12 Compute the derivative of $f(w) = \frac{w}{e^{6w}}$
5. Problem 2.7.14 Compute the derivative of $f(x) = \ln(\sqrt{8x})$
6. Problem 2.7.28 Find the tangent line to the graph $y = f(x)$ at $x = 1$ when $f(x) = 2\ln(x^3)$.
7. Problem 2.7.30 Find all value for which the tangent line to $y = f(x) = x^2e^{-2x}$ is horizontal.
8. Problem 2.7.44 Use logarithmic differentiation to take the derivative of $f(x) = x^{\sqrt{x}}$.