Section 7.3 Worksheet:

Assigned problems: Exercises pp. 364-366, #4, 9, 10, 11, 14, 19, 21, 22, 28, 32, 51, 60, 64, 79, 85, 103.

1. Why is an antiderivative of $1/x$ equal to $\ln(|x|)$, rather than simply $\ln(x)$?

2. How can you use the fact that the natural log $(\ln(x))$ is the inverse function of e^x to find the derivative of the log function, $\ln(x)$?

3. Why would one want to use logarithmic differentiation? What advantage (if any!) does it offer?

Notes:

1. Interesting (and mysterious) connection: the derivative of a log is a rational function! This is the "missing power": the power rule works for all exponents but -1. An antiderivative of x^r is $\frac{x^{r+1}}{r+1}$ for all r but $r = -1$.

2. Again, no need to worry about bases for logarithms other than base e, since it's easy to change from one to another. Are you able to show how?