

**Math 16B: Short Calculus II**  
**Winter 2018, Section 3**  
**Homework Sheet 2**  
**Due: Monday, January 22, 2018**

Submit your solutions to the following problems in lecture on the due date above. Present your work in a clean and organized fashion, either on a printed copy of this document (preferred) or a separate sheet of paper. As stated in the syllabus, late submissions will **not** be accepted.

1. Find the derivatives of the following functions.

(a)  $f(x) = \frac{\ln(x)}{e^x}$

(b)  $f(x) = \ln(x^2(x+1)^3)$ .

2. Using properties of logarithms, write the following using only a single logarithm.

$$3(\ln(x+2)) - 4\ln(2x^3) + \ln(x^2+1)$$

3. Find the half-life of a radioactive substance for which 99% remains after 1 year.