Math 1720 Homework 2, due Friday Feb 3
Explain all answers and show all calculations.

Problems in suggested order:
§7.2: 13, 17, 18, 19, 22, 12
Problems 1,2,3 below.
§7.1: 10, 13, 14

Note: We will discuss methods relevant to the §7.1 problems, and problem 2 below, on Monday.
Hint: in §7.2: 12, you will need to break into different cases depending on what interval x is in.

1. In each part (a),(b), let f, g be the functions specified. Determine: (i) Is g an inverse for f? (ii) If not, determine the longest interval D such that g is an inverse for f over D.

(a) $f(x) = 2x^3 - 5$ and $g(x) = \sqrt[3]{\frac{1}{2}(x + 5)}$.

(b) $f(x) = 3x^6 + 1$ and $g(x) = \sqrt[6]{\frac{1}{3}(x - 1)}$.

2. Let $f(x) = \frac{1}{x} - \frac{1}{x^2}$. Determine the longest intervals over which f is one-to-one.

3. Suppose $\ln(a) = -3$ and $\ln(b) = -2$. Find

$$\int_a^b \frac{1}{x \ln(x^3)} dx$$