HOMEWORK 1

Instructions: Complete the following problems. You may not use a calculator except where explicitly stated. Remember that homework will be collected at the beginning of class on January 20, and late homework is not accepted.

E1. From Stewart's *Calculus: Concepts and Contexts*, do the following exercises:

- Section 1.6: 21-26, 33, 34, 47-50
- Section 2.1: 6 (you can use a calculator for this problem)

E2. Suppose $k(x) = 2^{e^{3x}+1}$.

- Find functions $f(x), g(x)$ and $h(x)$ with $(f \circ g \circ h)(x) = k(x)$.
- Using f, g and h as above, compute $h(f(g(x)))$.
- Using f, g and h as before, find the inverse of $h(g(f(x)))$.

E3. Consider the graph of the function given in Problem 6 of Section 1.3 (see page 46 in *Stewart*).

- Compute $f^{-1}(3)$ and $f^{-1}(0)$.
- Graph $f^{-1}(x)$.
- Is $f^{-1}(x)$ a function? Justify your claim.