

# Assignment 8

MATH2380 – MATHEMATICS FOR THE ENVIRONMENT – SPRING 2013

**Due Friday, February 8**

Name: \_\_\_\_\_

1. Exercise 16.6 in the course text.
2. Every second 5 people are born and 2 people die, a net gain of 3 people worldwide. At this rate, the world population will double every 40 years and would be 12 billion in 40 years, 24 billion in 80 years, and more than 48 billion in 120 years. However the United Nations estimate that the world population will stabilize at 12 billion in 120 years, citing that effective family planning will result in a universally low birth rate.

This sort of exponential growth, followed by stabilization, can be represented in what is known as a “logistic curve” or “logistic function.” Research this type of growth, and find something in your daily life that can be represented by this type of curve. For instance, mold growing on bread inside a bag (a closed environment) follows this curve. While the mold exists and is growing exponentially, potentially when you purchase the bread, it will eventually begin to run out of resources and the mold population will stabilize.