Math 300 **Fall 2024**

Lab Assignment #10

This lab is due at 12:30 PM on Monday, 10/7 and is worth 10 points. This part may be done individually, or in a group of 2, 3, or 4 people.

1) You have \$5000 in your bank account. Six years later, it is \$6400. Assume exponential growth.
a) Find a model of the form $M_n = M_0(k)^n$.
b) What is the annual interest rate?
c) How much money is there 11 years after the start?
d) When will there be \$9000?

2) A pair of sneakers was \$28 in 2000 and \$36 in 2011. Assume exponential growth.
a) Find a model of the form $P_n = P_0(k)^n$.
b) What is the annual price increase rate?
c) Find the price in 2024.
d) When will the sneakers be \$80?

3) The amount of a radioactive substance decreases by 84% over 5 hours. Assume exponential decay. Assume the starting amount is 100 (like 100%).

a) Find a model for the amount remaining, of the form $R_n = R_0(k)^n$.

b) What percent remains each hour?

c) What percent decays each hour?

d) Find the amount remaining after 1.4 hours.

e) How long until 1% remains?