Math 300 **Fall 2024**

Lab Assignment #8

This lab is due at 12:30 PM on Monday, 9/30 and is worth 10 points. This part may be done individually, or in a group of 2, 3, or 4 people.

1) You buy an RV for $120,000. At the end of each year, it is worth 85% of its value from the previous year. Assume this exponential model continues indefinitely.
a) Find an exponential model for the value after n years.
b) Find the value in 5 years.
c) Find the value in 15 years.
d) When will the RV be worth $60,000?
e) When will it be worth $6,000?

2) In the country of Elbonia, inflation is very bad, and prices double every month. Assume this exponential model continues indefinitely. A gallon of milk costs 560 euros right now.
a) Find an exponential model for the price of a gallon of milk after n months.
b) Find the price after 10 months.
c) Find the price after 30 months.
d) When will the milk cost 10,000 euros?
e) When will the milk cost 1,000,000 euros?

3) Each centimeter of sound insulation absorbs 40% of sound energy and transmits 60%. Assume this exponential model continues indefinitely.

a) Find an exponential model for the percent of transmitted energy through n cm.

b) How much is transmitted through 5 cm?

c) How much is transmitted through 12 cm?

d) How much sound insulation is required so that only 20% of sound energy is transmitted?

e) How much sound insulation is required so that only 1% of sound energy is transmitted?