Name: _____
MATH 108
Fall 2023
HW 5: Due 09/21

"A wise man should have money in his head, but not in his heart."
–Jonathan Swift

Problem 1. (10pt) You need a loan to buy a collection of 18th century style wigs. Robobank has given you two different options: either you may take a loan at 2.9% annual interest, compounded quarterly, or a loan at 2.89% annual interest, compounded continuously.

(a) Which loan appears to be the 'better deal'? Explain.

(b) Compute the effective interest for both loan setups. Which loan setup is better? Explain.

(c) Compute the doubling time for both loan setups. Which loan setup is better? Explain.

Problem 2. (10pt) Leonard wants to buy a new Helium-Neon laser. The laser costs $895.99. He will purchase the laser by placing $600 into an account earning 3.1% annual interest, compounded continuously and saving the money.

(a) How long until Leonard has enough money for the laser?

(b) How long until Leonard doubled his money?

Problem 3. (10pt) Penny just sold her stuffed bear collection for $11,460. She places the money into a savings account earning 5.2% annual interest, compounded semiannually.

(a) How long until the account value has doubled?

(b) How long until the account contains $1,000,000?