Name: _____
MATH 108
Spring 2024
HW 4: Due 02/07

"Oh my! It smells like Granda's house at Christmas. That's when we found her dead on the toilet."

— Kenneth Parcell, 30 Rock

Problem 1. (10pts) Eileen Bach sells propane and propane accessories. She wants to start a YouTube channel where she reviews grills. Of course, she will then have to regularly purchase grills. She wants to review a grill per week and post it to her channel. Eileen estimates that the average grill will cost her $720. After she is done, she thinks that she will be able to re-sell the grill at a 40% discount. She plans on saving for 3 months worth of reviews by making a single deposit into an account that earns 1.13% annual interest, compounded every other month for a period of a year and a half.

(a) At the end of the month, how much should Eileen estimate that she has net spent on grills?

(b) How much should she deposit into the account?

Problem 2. (10pts) Susan Flaye has taken out a loan to afford the best possible broom she can to join her local adult Quidditch league. The loan was for $870 at 9.55% annual interest, compounded quarterly. She has not made any payments on the loan for the past 2 years. Though Susan has performed fantastically on her team—leading them to over 13 victories—how much does Susan currently owe on her loan?

Problem 3. (10pts) Ty Coon is saving to build a roller coaster park. Though he has investors and can take out loans, he wants to have at least $26 million saved to bring to the table on his own when the park opens. Ty will deposit money into an account that earns 2.9% annual interest, compounded continuously. The money will sit for 3 years while the park is being constructed. What is the minimum amount that Ty should deposit now to have at least $26 million at the end of the three years?

Problem 4. (10pts) Justin Caese has invested in his future by purchasing the world's largest Pog collection. He currently estimates that the collection is worth $5,600 and that the value increases each month by 1.17%.

(a) How much is the collection worth in 10 years?

(b) How long until the collection is worth $100,000?