

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

**MATH 108**

**Spring 2024**

**HW 7: Due 02/14**

*“[David] The cedar planks out behind the motel, are they being used for something, or are they up for grabs? [Stevie] How do you know it’s cedar? [David] Um, I bought a cologne once, in Japan, that’s supposed to smell like the aftermath of a car crashing into a cedar tree.”*

*— David Rose & Stevie Budd, Schitt’s Creek*

**Problem 1.** (10pts) Lue Zcar is going through a midlife crises and decides to buy a new luxury sports car. He asks his assistant to organize the loan. Lue’s assistant organizes the loan, securing a \$354,750 loan at 6.42% annual interest, compounded monthly over a period of 10 years. Mr. Zcar’s payments will occur at the end of each month.

- (a) What are Lue’s monthly payments?
- (b) What is the total interest Lue will pay on this loan?

**Problem 2.** (10pts) Sara Bellum is a neurobiologist looking to fund her lab. She approaches a local businessman, Faisal, for support. As he wants to support the sciences, he offers her very favorable terms: \$540,000 at 2.99% annual interest, compounded semiannually for a period of 10 years. Determine to pay back the loan quickly, Sara will make equal, start of the month payments of \$5,194.33.

- (a) How much does Sara still owe after 5 years of payments?
- (b) At the end of 5 years, how much of Sara's payments actually go toward the loan? How much is paid in interest for this payment?