Name: _____
MATH 108
Fall 2023
HW 6: Due 09/26

"I've got all the money I'll ever need, if I die by four o'clock."
–Henny Youngman

Problem 1. (10pt) For an annuity with a period of 23 years, quarterly payments, and a 4.56% annual interest, compounded monthly, compute the following:

(a) $s_{\overline{\text{PM}}|i}$

(b) $a_{\overline{\text{PM}}|i}$

(c) $\ddot{s}_{\overline{\text{PM}}|i}$

(d) $\ddot{a}_{\overline{\text{PM}}|i}$

Problem 2. (10pt) Paige Turner is saving enough money to self publish her book, *A LARP Guide to Friends*. She deposits $240 at the end of every month into a savings account that earns 5.25% annual interest, compounded monthly.

(a) How much will she have saved after 3 years?

(b) If her account had $8,700 in it before she made her deposits, how much money would be in the account after the 3 years?

(c) What should her monthly deposits have been, if she had wanted to save at least $13,000 by the end of the 3 years? [Do not include the $8,700 in her account from (b).]

Problem 3. (10pt) Jed Knight has just won a $13,000,000 lottery. He would like to retire to an isolated swamp home in Florida. He deposits the winnings into an account that earns 4.7% annual interest, compounded monthly. Given that he is already 65, he estimates that he will only live another 20 years. Jed live off his winnings by withdrawing money at the end of every month off of which to live.

(a) What is the largest amount he can withdraw each month to last him the rest of his life?

(b) Suppose instead he withdraws the money at the start of every month. What is the largest amount that he can withdraw monthly?

Problem 4. (10pt) Shay is having trouble finding dates. He decides the solution to his problem is to purchase a replica of the 1966 Batmobile. He immediately begins saving for the car by putting aside $820 on the first of the month, every 3 months, for 5 years. The account he deposits the money into earns 4.21% annual interest, compounded monthly.

(a) How much will Shay have saved after the 5 years?

(b) If he needed to save $110,000 for the car, what is the amount he should have been depositing?