

Name: _____

MATH 108

Spring 2024

HW 5: Due 02/07

“The answer was so simple, I was too smart to see it!”

— Princess Bubblegum, Adventure Time

Problem 1. (10pts) You want to purchase a collection of Bob Ross paintings. Bank Sinatra offers you two different loan options: a loan with 3.2% annual interest, compounded semiannually or a loan at 3.18% 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. (10pts) Reed wants to buy a tablet for his books while he travels. He finds one that he likes for \$340. Reed places \$240 into an account that earns 1.02% annual interest, compounded continuously. Assume that he makes no additional deposits.

- (a) How long until Reed has enough money for the tablet?
- (b) How long until Reed would have doubled his money?

Problem 3. (10pts) Spencer sold his painting of a man dressed as a T-Rex walking someone else's dog for \$2,427. He places all the money into an account that earns 4.7% annual interest, compounded quarterly.

- (a) How long until he has double this amount in savings?
- (b) How long until this money in the account has increased in value to \$200,000?