

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

MATH 108

Fall 2021

HW 9: Due 11/16

*“What I hear when I’m being yelled at is  
people caring loudly at me.”*

*–Leslie Knopp, Parks and Recreation*

**Problem 1.** (10pt) Otto Graf borrows \$8,000 from a neighbor to help fund his startup. He promises to pay back the neighbor, plus 15% interest per year on the borrowed amount.

- (a) What is the interest owed at the end of 9 months?
- (b) How much does Otto owe the neighbor if he pays them back after a year and a half? How much of this payment was interest?
- (c) Suppose Otto wants to be sure he does not owe the neighbor more than \$10,000. If he plans on repaying them in 2 years, what is the largest sum of money that he can borrow from them?

**Problem 2.** (10pt) Mary A. Richman takes out a \$600 loan from the bank. Because of her credit history, she is charged a 6% discount on a six month note.

- (a) What are the nominal and effective interest rates for this loan?
- (b) What is the discount of this loan?
- (c) How much money does Mary receive from the bank?
- (d) How much does Mary owe the bank after six months?

**Problem 3.** (10pt) Paige Turner invests \$3,500 in a social media marketing company that promises a 4.1% annual return on the investment, with interest paid to the investors semiannually.

- (a) What is the nominal and effective interest rate for this investment?
- (b) How much money will the investment be worth after 2 years?
- (c) How long until the investment is worth \$5,000?
- (d) How much should Paige have placed in the company if she wanted \$5,000 at the end of 2 years?

**Problem 4.** (10pt) Adam Baum deposits \$18,500 into a savings account that pays 2.2% annual interest, compounded continuously.

- (a) What is the nominal and effective interest rate for this account?
- (b) How much money will be in the account after 10 years?
- (c) How long until the account has \$20,000?
- (d) How much should Mr. Baum have placed in the account if he wanted \$20,000 at the end of 5 years?