

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

MATH 108

Fall 2022

HW 1: Due 09/08

*"I mean not homework. It's not work if you love it."*

*—Alex Dunphy, Modern Family*

**Problem 1.** (10pt) Ray runs a vegetable stand called 'Beets by Ray.' The radishes he sells cost him an average of \$0.86 per radish in production costs. In order to turn a profit on their sale, he marks them up by 89.5%.

- (a) Find the amount by which Ray increases the beet price.
- (b) Using your answer from (a), find the price at which he markets the beets.
- (c) By recognizing the market price of the beets as a percent increase problem, find the market price of the beets you found in (b) 'directly.'
- (d) If a customer that purchases 36 beets from Ray and must pay a 7% tax, what is the final purchase price?

**Problem 2.** (10pt) For each of the following, determine the likely dependent variable(s) and independent variable. Then determine, with an explanation, whether the independent variable is a function of the given dependent variable(s). If the independent variable is a function, write it in function notation using appropriate variables.

- (a) The amount of sales at an electronic store given the number of people that have entered the store since opening.
- (b) The amount of cars that have passed through an intersection some number of hours after 8 am.
- (c) The amount of money earned at an hourly job given their hourly pay and hours worked.
- (d) The number of children a couple has given their combined income (to the nearest thousand dollars) and the median of their ages.

**Problem 3.** (10pt) Danisha just started as a sales representative at a local advertising firm. She received a \$1,200 starting bonus and earns \$38/hr.

- (a) Explain why the amount Danisha has made,  $I$ , after working at this firm for  $d$  days is a linear function.
- (b) Assuming Danisha works 8 hour days, find  $I(d)$ , the amount Danisha has made after working  $d$  days at the company.
- (c) Interpret the slope and  $y$ -intercept from your answer in (b).
- (d) How long until Danisha has earned \$10,000 from working at the company?

**Problem 4.** (10pt) Watch the following videos about issues with Excel:

- [When Spreadsheets Attack!](#)
- [Top 10 Mistakes with Excel Spreadsheets Vol1](#)
- [Avoid These Excel Formatting Mistakes](#)

After watching these videos, as detailed as possible, describe the following (in addition to any other observations you would like to make):

- What did you learn from these videos?
- What surprised you about these videos?
- What issues should you be aware of in Excel?
- What advice was given and did any of it seem contradictory?