

Name: _____
MATH 108
Spring 2022
Excel HW 1: Due 02/14

*"I don't know what to do! My whole
brain is crying."*

– Troy Barnes, Community

Problem 1. (10pt) On the sheet labeled Problem 1 are two functions $f(x)$ and $g(x)$. Answer the following in the appropriate space on the sheet labeled Solutions.

- (a) Determine if $f(x)$ is exactly linear, approximately linear, or neither. Explain how you came to your answer.
- (b) Determine if $g(x)$ is exactly linear, approximately linear, or neither. Explain how you came to your answer.

Problem 2. (10pt) Suppose Catcher in the Rye is a bar that sells a high end whiskey. The revenue and cost for selling n glasses of the whiskey is given on the sheet labeled Problem 2. Answer the following in the appropriate space on the sheet labeled Solutions.

- (a) What is the bars fixed cost for this drink and how much does each glass sell for?
- (b) Using only the given revenue and cost data, approximately how many glasses of whiskey does the bar need to sell to turn a profit? Explain how you know.
- (c) Create a column that computes the profit for selling n glasses of whiskey. Copy the values of n , $R(n)$, $C(n)$, and $P(n)$ for $n = 18$ into the appropriate space on the solutions sheet.
- (d) Using your $P(n)$ column, approximately how many glasses of whiskey does the bar need to sell to turn a profit? Explain how you know.

Problem 3. (10pt) On the sheet labeled Problem 3 are a revenue function, cost function, and profit function $R(x)$, $C(x)$, and $P(x)$, respectively.

- (a) Plot $R(x)$ and $C(x)$ on the same graph. Copy this graph onto the appropriate area on the solutions sheet.
- (b) Explain how you can determine the equilibrium point using your answer from (a).
- (c) Plot $P(x)$ and copy this graph onto the appropriate area on the solutions sheet.
- (d) Explain how you can determine the equilibrium point using your answer from (c).

Problem 4. (10pt) On the sheet labeled Problem 4 is data associated to a revenue function, $R(x)$ and a cost function, $C(x)$.

- (a) Find the average revenue and average cost for selling 40 items. Copy your answers onto the appropriate area on the solutions sheet.
- (b) Find the marginal revenue and marginal cost for selling 82 items. Copy your answers onto the appropriate area on the solutions sheet.

Problem 5. (10pt) On the sheet labeled Problem 5 is some basic data associated with selling one item of a certain product. Create a table finding the quantity, price, fixed cost (FC), variable cost (VC), total cost (TC), average cost (AC), revenue (R), average revenue (AR), profit (P), and average profit (AP) for selling 1, 2, 3, ..., 50 items. Copy your answers for each of these values when the total items sold is 25 into the appropriate area on the solutions sheet.