Name: _____
MATH 108
Fall 2023
HW 1: Due 09/07

"I have no idea what I'm doing, but I know I'm doing it really, really well."
–Andy Dwyer, Parks and Recreation

Problem 1. (10pt) A small tanker truck is depositing its gas at a storage facility. The tanker is carrying 11,600 gallons of gas and is emptying its tank at a rate of 528.3 gal/min. Let $G(t)$ denote the volume of gas, in thousands, left in the tanker t minutes from now.

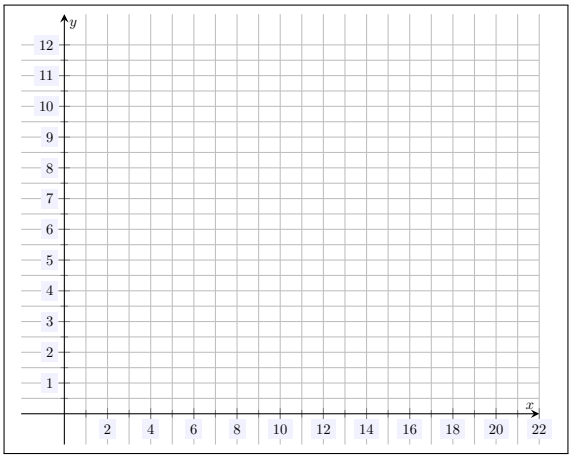
(a) Explain why $G(t)$ is linear.

(b) Find $G(t)$ and sketch it in the plot below.

(c) Interpret the slope of $G(t)$.

(d) Interpret the y-intercept for $G(t)$.

(e) Find and interpret (if possible) the x-intercept for $G(t)$.



Problem 2. (10pt) Compute the following:

(a) 83% of 2,429

(b) 17% of 94.2

(c) 121% of 16

(d) 55 decreased by 27%

(e) 430 increased by 60%

(f) 38 increased by 130%

Problem 3. (10pt) Monty offers wellness classes at his spa. A session typically costs $65; however, due to popularity, Monty is raising his prices. Over the next three months, he will raise his prices by 5% each month.

(a) How much will a wellness session cost at the end of the three months? Be sure to justify your answer.

(b) Is your answer in (a) the same as raising the original price by 15%? Explain.

(c) If he simply made the price $80, by what percentage did he increase the price from the original price?

(d) By what percentage would Monty have to increase his prices over the next three months so that the final cost of a wellness session would be the same as a single price increase of 20% from the original cost?