Name: _____

MATH 100
Fall 2023
HW 6: Due 10/02

"Pitter patter, let's get at'er."
– Wayne, Letterkenny

Problem 1. (10pt) For each of the following, describe whether the given dependent variable is a function of the independent variable:

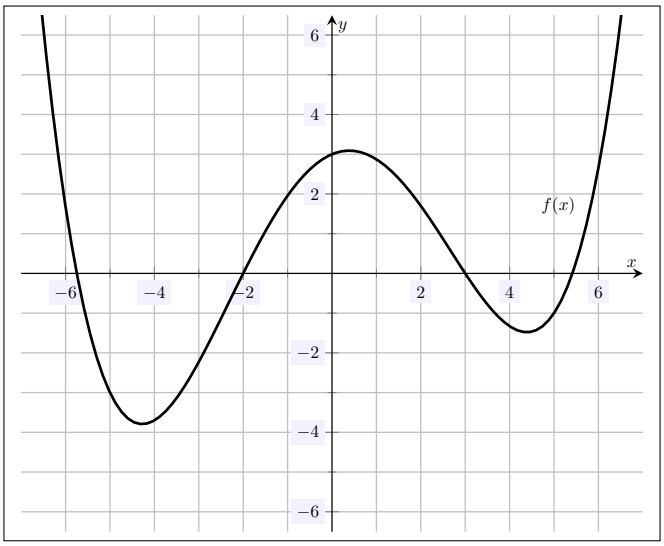
(a) Independent: the number of days since you purchased your car.
Dependent: the milage for your car.

(b) Independent: the number of people in a specific room at noon.
Dependent: the day of the week.

(c) Independent: the day of the year.
Dependent: the sunrise time.

(d) Independent: your laptop battery percentage.
Dependent: the time remaining until your laptop runs out of power.

Problem 2. (10pt) Consider the relation plotted below:



(a) Is the relation, $f(x)$, plotted above a function? Explain.

(b) Find the y-intercept.

(c) Find the x-intercepts.

(d) Find the value of $f(6)$.

(e) Find any x-values for which $f(x) = 2$.

Problem 3. (10pt) Define $f(x)$ to be the relation given by $f(x) := 2.7x + 14.9$.

(a) Is $f(x)$ a function? Explain.

(b) Find $f(9)$.

(c) Is there an x_0 so that $f(x_0) = 20$? If so, find it. If not, explain why.

(d) Find the y-intercept for $f(x)$.

(e) Find any x-intercepts for $f(x)$.

Problem 4. (10pt) Let $f(x)$ and $g(x)$ be the functions given by the values in the table below.

x	-2	-1	0	1	2
$f(x)$	4	5	-1	6	0
$g(x)$	3	-2	7	0	-1

Compute the following:

(a) $f(-2) - g(1)$

(b) $(f + g)(0)$

(c) $(fg)(-1)$

(d) $(f \circ g)(2)$

(e) $(g \circ f)(2)$