

Name:

HW 4: §1.3-1.5

Complete the following problems to the best of your ability. **SHOW ALL OF YOUR WORK.** Unshown work will not be graded. You may use a calculator.

- Given the following table, find a linear equation that models the data.

x	0	2	4	6
y	3	5	7	9

- Suppose the linear equation $R = 2G+4$ models the number of rainfalls in a given month, R , as a function of the number of goats sacrificed to the rain god, G .
 - If the village sacrifices 4 goats, how many times will it rain?
 - How many goats should the villagers sacrifice if they need it to rain at least 16 times in a month?
 - If the villagers experience a religious reformation and stop sacrificing goats, how many times will it rain in a month?

3. For the following functions, state the Independent Variable, the Dependent Variable, and determine whether the relation is a function or not. Explain your reasoning.

(a) Student as a function of first name.

(b) Temperature as a function of time of day.

4. Does the equation $4x^3 + 2 = y^2$ define x as a function of y ?

5. Let $f(x) = \sqrt{2x + 4}$.

(a) Evaluate $f(3)$.

(b) Find the net change of f from -1 to 3 .

(c) What is the domain of f ?

6. A water company charges \$.0008 per gallon for households using less than 4000 gallons of water a month and \$.012 for households that use 4000 gallons or more a month. Come up with a piecewise function that gives $C(x)$, the cost of a household's water bill, as a function of x , the number of gallons of water the household uses. **Sketch a graph of this function.**

Optional Problems:

1.3: All
1.4: All
1.5: All