Topic 4.8 Practice Problems

1. Identify the independent and dependent variables for each situation.

   (a) The number of gallons, g, that overflows in a sink after running for m minutes.

   (b) The number of workers on a construction site, w, and the time it takes to finish a building, t.

   (c) The number of pages, p, read in h hours.

   (d) The speed a car travels, s, and the total distance it covers, d, during a trip.

   (e) The paycheck, p, you earn for working m months.

   (f) The number of text messages, m, sent when a person uses their phone for t hours.

   (g) The number of hours a laptop is used, h, compared to the percentage of battery remaining, b.

2. Write your own situation and identify the independent and dependent variables. Make sure to clearly define your variable(s).

3. Name two independent variables that could result in a change in plant height.

4. Determine whether each statement is true or false. Explain briefly.

   (a) The dependent variable is something that you can measure, but the independent variable is non-measurable.

   (b) A dependent variable can have one or more independent variables.

   (c) You spend c dollars for a pair of p pants. If c increases because p increases, and if p increases because c increases, then c or p can be the independent variable.

5. If you want to determine whether there is a relationship, is it better to have one independent variable or more? Explain.

6. Below is a table of the balance in a bank account. When the account was first set up, they deposited \$100,000.

Days (d)	**Balance (B)**
1	\$100100
2	\$100200
3	\$100300
4	\$100400
5	\$100500
6	\$100600
7	Y

(a) What are the independent and dependent variables?

(b) Do you notice a pattern between each day? What do you think Y could be?

(c) Below is an incomplete formula to represent the dataset:

$$B = md + 100000$$

Hint: plug in a value for d and B, and solve for m.

7. Write two scenarios:

(a) One scenario where time, t, is an independent variable.

(b) One scenario where time, t, is a dependent variable.