Name: _____   Date: _____

Chapter 6 Problems

1. A meteorite enters Earth's atmosphere with an initial velocity of 20 km/s. Every second it slows down by 1 km/s due to friction with the atmosphere.

Is this a linear relation? Graph the meteorite's velocity until it stops.

2. The formula for the sum of four consecutive numbers can be written as $y = x + (x + 1) + (x + 2) + (x + 3)$.

a) Simplify the equation.

b) Create a table of values for every value of x from 0 to 11.

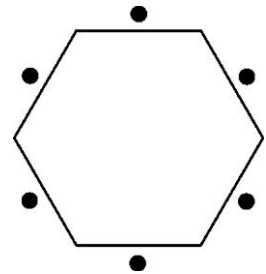**c)** Is this a linear relationship? How do you know?

3. A restaurant has hexagonal tables that seat six.

a) On a graph, show how many chairs the restaurant needs for 20 tables.

b) Write a linear equation to represent your graph.

c) Sometimes, the restaurant needs to make long tables by placing the tables so that one side is sharing a side with another table. Write the linear equation that represents this situation. How many tables would be needed to seat 42 people?

d) Sometimes, the restaurant hosts meetings and needs to arrange the tables so that every table shares two sides with another table. What is the smallest arrangement of tables that can be made? What is the next smallest arrangement?

4. Suppose you know nothing about this experiment that involves voltage or current.

Voltage (V)	Current (mA)
0.0	0
1.5	30
3.0	60
4.5	90
6.0	120

a) Does the data indicate a linear relation? How do you know?

b) Describe this relationship using words or a formula. Use this to solve for $V = 1.0$.

5. a) Write equations to represent the sum of two, three, and five consecutive numbers.

b) Starting with $x = 1$, use the equations from part a) to solve for every value until $y \geq 50$. Create a table of values to show the results.

c) Compare the table of values from part b) and #2. What numbers from 0 to 50 do not appear as values of y?