TRS 92: Domain and Range

Think Ahead about Percentages and Equations
You are expected to fully understand this work when you come to class. A key will be posted on your instructor's website. Check your work and get help if needed.

1. Your family goes out for dinner and the bill comes to $45, prior to tax. There is a 5.6% tax on the bill. What is the new cost of the meal?

2. You go to your favorite store and find your $45 jeans on sale for 30% off. What is the new price of your favorite jeans?

Two students got together to discuss the problems above. They were surprised to find that they had done the problems differently, but got the same answer. Their solution methods are shown below. Answer the following questions: Would both of the methods always work? If so, explain why they are equivalent. If not, explain why.

| 3.	Sandy's Solution 45 * 0.056 =2.52 45 + 2.52=47.52 The cost of the meal is $47.52	Ambika's Solution 45 (1.056) = 47.52 The cost of the meal is $47.52

4.	Sandy's Solution 45 * 0.3=13.50 45 -13.50=31.50 The cost of the jeans is $31.50	Ambika's Solution 45 (0.7) = 31.50 The cost of the jeans is $31.50

5. Leslie has started a savings account for her son, Bailey, with $100 and adds $20 per month. Complete the table below and use the information to write a general equation for the situation.

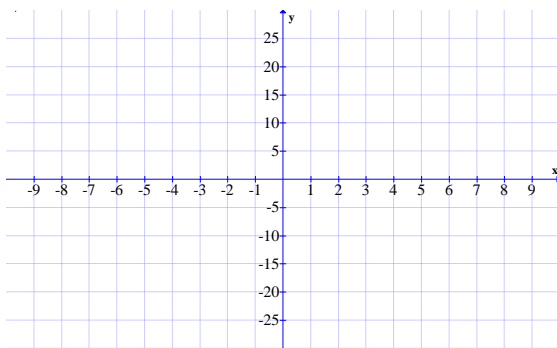| Month	Amount in $
0	100
1	
2	
3	
4	
10	
16	
N (general equation for *N* months)	

Domain and Range

6. Below is the graph of the amount owed by Amy on her new car. *A* is the amount owed in thousands of dollars, and *t* is time in months.

Amount of money owed over time
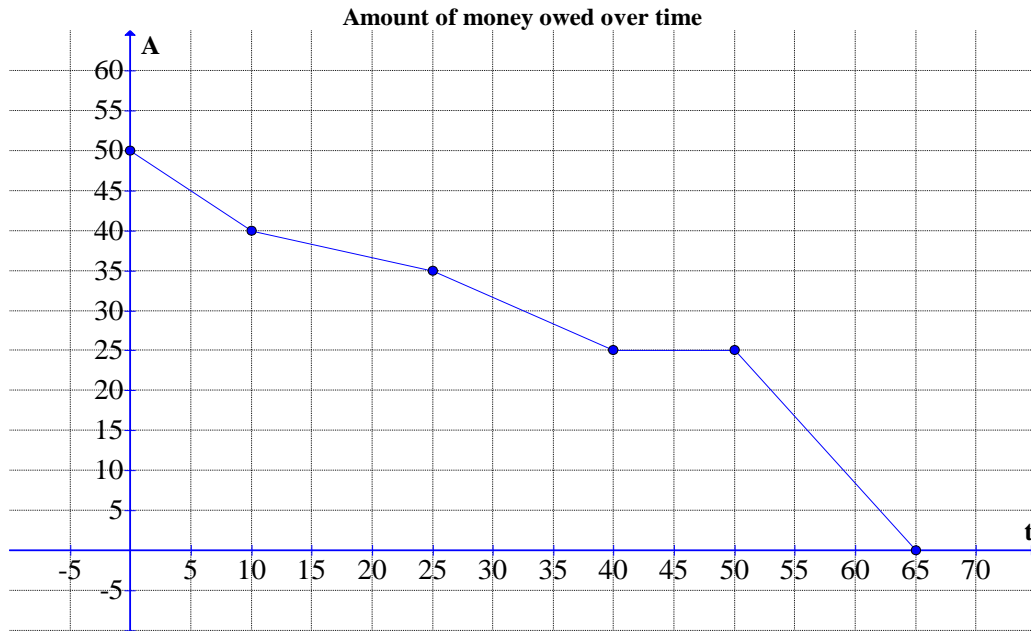
a. What is the domain of this graph?

b. What is the range of this graph?
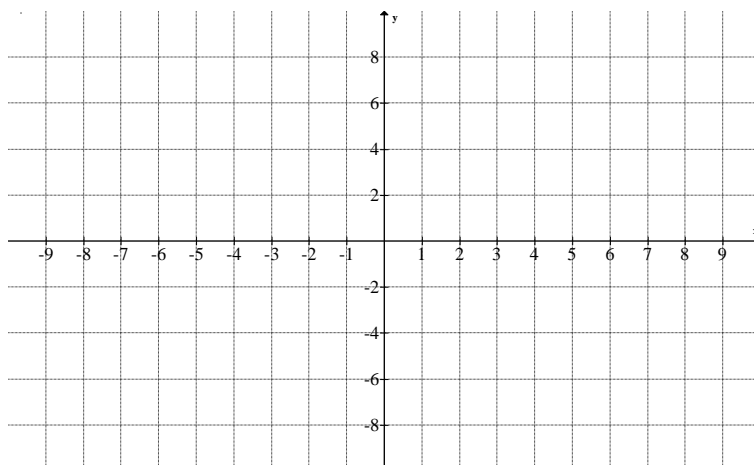
c. What is $A(40)$?

d. What is *t* when $A(t) = 35$?

7. Draw the graph of $g(x) = 2x + 10$.

a. What is the domain of your graph?

b. What is the range of your graph?

8. Sketch a graph that meets the following criteria:

- Is a function
- Has a domain of -5 to 5
- Has range of -4 to 10

Writing Prompt #4
Your first three writing assignments covered abstract problems. Sometimes you will be presented with a problem in-context. When you are writing about a contextual problem, it is necessary to start your writing with an introduction to the problem. The introduction should include a restatement of the given information in your own words.

Example problem:
Two hockey stores have been competing for business over the years. Both stores sell a lot of hockey pucks and their sales in thousands of pucks, *S*, since 1989 can be modeled by the following equations:

Gretzky's Hockey Emporium: $S_G(t) = 9.45 + 0.75t$

Mario's Mega Store: $S_M(t) = 12.05 + 0.68t$

where *t* represents the time in years since 1989. Which hockey store will have more pucks in 2012?

Write introductions in your own words. Avoid copying the original problem.

Too similar to given information with important details left out:	Better:
There are two hockey stores that have been competing for business. Both stores sell a lot of pucks and their sales can be modeled with the following equations: $S_G(t) = 9.45 + 0.75t$ and $S_M(t) = 12.05 + 0.68t$.	Since 1989, two hockey stores have been in competition for business. Business at Gretzky's Hockey Emporium can be modeled by the equation: $S_G(t) = 9.45 + 0.75t$. Mario's Mega Store's sales can be represented by $S_M(t) = 12.05 + 0.68t$. S represents the sales in thousands of pucks, the dependent variable. t represents the time in years since 1989, the independent variable.

Your explanation should either be typed or written neatly on separate, lined paper or the back of this sheet. Vocabulary that should be used, but is not limited to, includes: independent variable and dependent variable.

Assignment: Leslie is getting concerned because the leaves on her trees are starting to fall, which makes a lot of raking for her to do. The following graph shows the percentage of leaves left on the tree for each day in September, with percentage of leaves, *p*, as a function of time, *t*.

What is the domain and range of the graph and what do they mean in the context of the situation? Clearly explain how you found the domain and range.

Percent of Leaves on Trees in Leslie's Yard