**Name:\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_ Date:\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_ Per.\_\_\_\_\_\_\_ Score:\_\_\_\_\_**

**U9 HWK #6** *From Stories to Graphs and Graphs to Stories*

**Directions:** Sketch a graph for each of the stories below.

1. A Train that takes passengers from downtown back home to the suburbs makes 5 stops. The maximum speed at which the train can travel is 40 mph. Sketch a graph of the speed of the train a function of time since leaving the downtown train station.



1. Tessa is cooking potatoes for dinner. She puts some potatoes in an oven pre-heated to 200˚ F. The graph below shows the temperature of the potatoes over time. Label the key features of the graph. The *y*-intercept of the graph is (0, 20).



1. Tell the story of the graph.

Review

1. Define the following vocabulary: Use complete sentences and examples as needed.
* function:
* independent variable:
* dependent variable:
1. List the ordered pairs of this relationship?

Input Output

0

1

2

3

0

1

* Is this a function? Justify your thinking.
* If it is a function, is it linear or non-linear?
1. Maria is draining her pool at a rate of 5.5 gallons per minute. It will take 1000 minutes to drain the pool. Show all mathematical thinking.
2. What is the independent variable? \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_
3. What is the dependent variable? \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_
4. How many gallons will the pool hold? \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_
5. What is the function that represents this situation? \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_
6. Is the following equation linear? Circle an equation(s) that is not a function. Justify your answer with words and numerical evidence.

$ y=2x+\frac{1}{2} y=2x^{2} 2x-3y=4 x=5 $

1. Maya and her brother each brought a seedling plant home from the store. The plants are both growing at a constant rate. Maya’s plant was 8 cm. tall at 2 weeks and 20 cm. tall at 8 weeks. The height *y* of her brother’s plant in centimeters x weeks after he brought it home can be modeled by the equation $y=\frac{3}{2}x+6$.

Justify your answers in words and numerical evidence.

1. What is the equation that represents Maya’s plant’s growth?
2. Which plant is growing at a faster rate?
3. Which plant was taller when they brought the plants home?
4. Graph the relationship and label each line.

