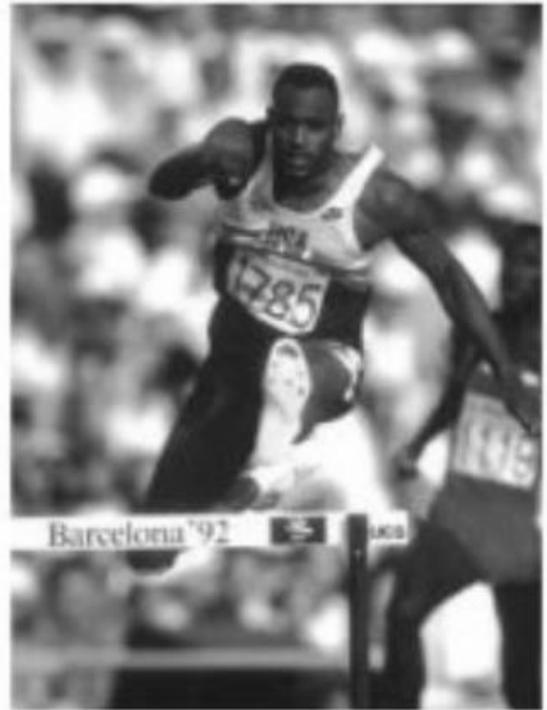


Long Term Assignment #4

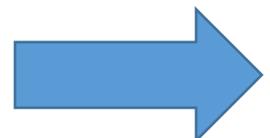
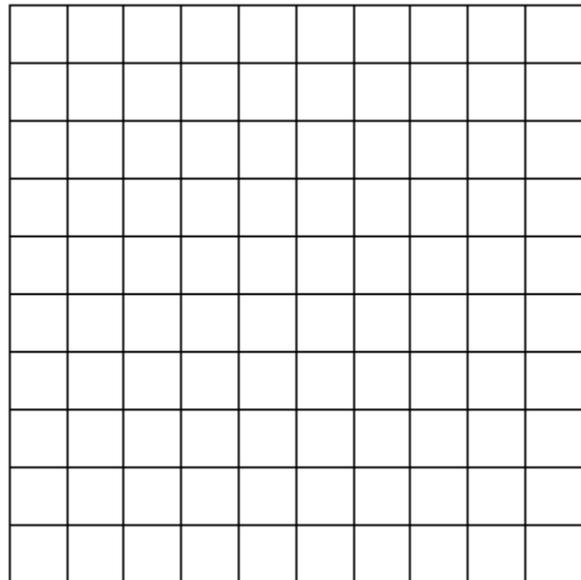
Period _____

6 The Olympic record for the men's 400-meter hurdle race is 46.78 seconds. It was set by Kevin Young in 1992. His average running speed was $400 \div 46.78 \approx 8.55$ meters per second.

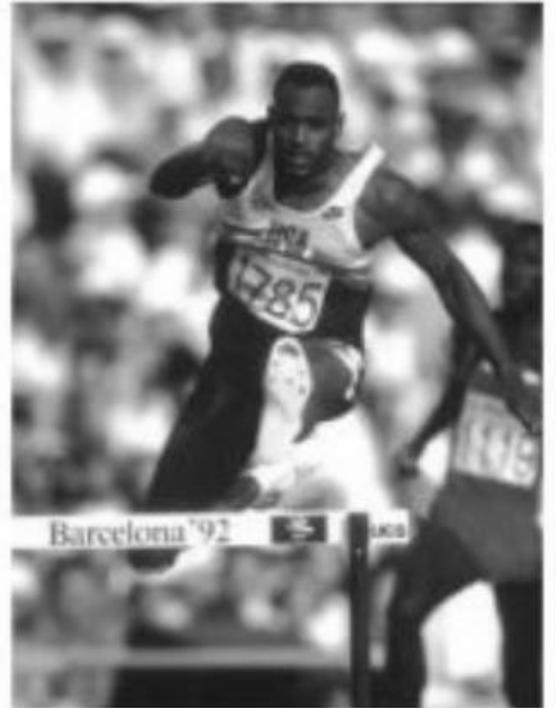
- a. Make a table and a graph showing how 400-meter *race time* changes as *average speed* increases from 2 meters per second to 10 meters per second in steps of 1 meter per second.



Average Speed	Race Time

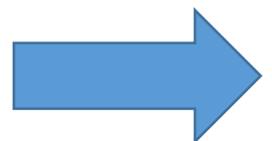


b. Describe the pattern of change shown in your table and graph.



c. Write a rule showing how to calculate *race time t* for any *average speed s*.

d. Which change in *average speed* will reduce the *race time* most: an increase from 2 to 4 meters per second or an increase from 8 to 10 meters per second? Explain how your answer is illustrated in the shape of your graph.



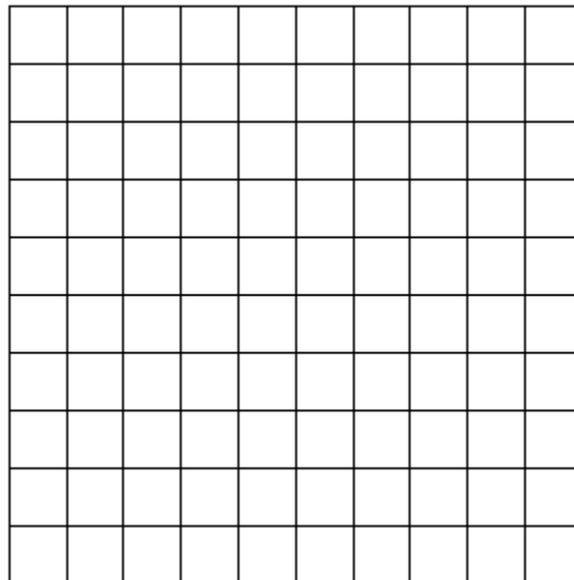
8 The Water World Amusement Park has a huge swimming pool with a wave machine that makes you feel like you are swimming in an ocean. Unfortunately, the pool is uncovered and unheated, so the temperature forecast for a day affects the number of people who come to Water World.

On a summer day when the forecast called for a high temperature of 90°F, about 3,000 people visited the park. On another day, when the forecast called for a high temperature of 70°F, only 250 people came for the ocean-wave swimming.

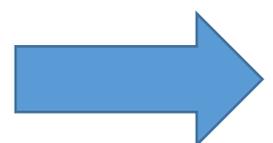
- a. Complete this table of (*temperature forecast, number of swimmers*) data in a way that you think shows the likely pattern relating *temperature forecast* to *number of swimmers*.

Temperature Forecast (in °F)	70	75	80	85	90	95
Number of Swimmers	250				3,000	

- b. Graph the data in Part a. Then draw a line or curve that seems to match the pattern in your data points and could be used to predict *number of swimmers* at other temperatures.



- c. Describe the pattern of change in the *number of swimmers* as the *temperature forecast* increases.



d. Suppose that Water World charges \$15 for admission. Use this information and your estimates for the *number of swimmers* at various *forecast temperatures* to make a table and graph showing the relationship between *forecast high temperature* and *park income*.

Temperature	Income

