Guided Notes 6

5.3: Interpreting Rate of Change and Slope

Essential Question: How can we relate rate of change and slope in linear relationships?

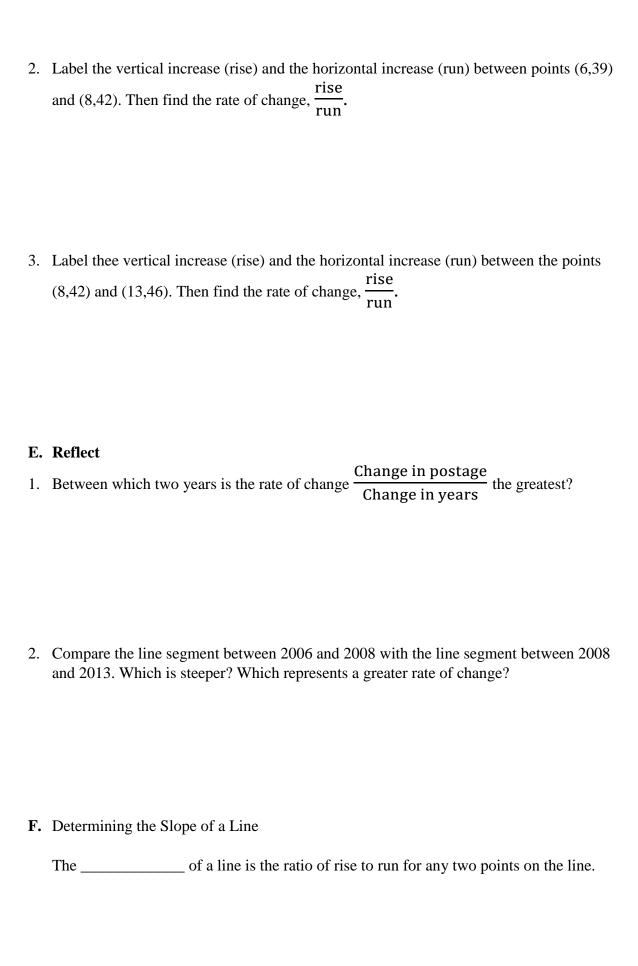
- **A.** Rate of change = $\frac{\text{change in y}}{\text{change in x}}$
- **B.** The table shows the year and the cost of sending a 1-ounce letter in cents.

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Years after	3	4	6	8	13
2000(x)					
Cost (cents)	37	37	39	42	46

Find the rate of change, $\frac{\text{change in Postage}}{\text{change in year}}$, for each time period using the table.

C. Here is a plot of the points represented in the table. By connecting the points with line segments, we can make a "Statistical Line Graph." (Draw the graph)

- **D.** Find the rate of change for each time period using the graph.
- 1. Label the vertical increase (rise) and the horizontal increase (run) between points (4,37) and (6,39). Then find the rate of change, $\frac{\text{rise}}{\text{run}}$.



Slope =
$$\frac{\text{rise}}{\text{run}} = \frac{\text{difference in y-value}}{\text{difference in x-value}} = \frac{y2-y1}{x2-x1}$$

- **G.** Determine the slope of each line.
 - 1. Use the slope formula to find the slope of the graph. (Pg. 182 Example 1A)
 - 2. Use the slope formula to find the slope of the graph. (Pg. 183 Example 1B)

H. Reflect

- 1. What is the slope of a horizontal line?
- 2. What is the slope of the vertical line?

3. If you have a graph of a line, how can we determine whether the slope is positive, negative, zero, or undefined without using the points on a line.

I. Find the slope of the line passing through the given points.

X	1	2	3	4
y	5	5	5	5

J.		and and interpret the slope for each real-world situation. The graph shows the relationship between a person's age and his/her estimated max heart rate. (Pg. 185 Example 3A)
	2.	The height of a plant, y in centimeters after x days is a linear relationship, the point $(30,15)$ and $(40,25)$ are on the line.