Name _____

Activity 1.6

Chapter 1: Function Sense

Learning Objective

1. Determine average rate of change.

Practice Exercises

1. *The following table of data from the United States Treasury gives the national debt (in trillions of dollars.)*

Year	1980	1985	1990	1995	2000	2005	2010
Debt	0.91	1.82	3.23	4.97	5.67	7.93	13.56

a. Determine the average rate of change in the national debt from 2000 to 2010.

b. Describe what the average rate of change represents in this situation.

c. Determine the average rate of change in the national debt from 1985 to 1995.

d. Determine a 5-year period in which the average rate of change is negative. Why is this so?

e. During what 5-year period did the average rate of change of the national debt increase the most?

f. What is the average rate of change during that 5-year period of greatest change?

g. Is the average rate of change zero over any 5-year period? Why or why not?

h. What is the average rate of change over the 30-year period described in the table?

i. What does this average rate of change represent?

j. What trend would you observe in a graph of this 30-year period?

2. *The following table of data from the United States Census Bureau gives the national population (in millions of people.)*

Year	1910	1920	1930	1940	1950	1960	1970	1980	1990	2000	2010
Debt	92	106	123	132	152	181	205	227	249	281	309

a. Determine the average rate of change in the population from 2000 to 2010.

b. Describe what the average rate of change represents in this situation.

c. Determine the average rate of change in the population from 1930 to 1940.

d. Determine a 10-year period in which the average rate of change is negative.

e. How did you determine that this period showed a negative change?

f. During what 10-year period did the average rate of change of the national population increase the most?

g. What is the average rate of change over any this 10-year period of most change?

h. Is the average rate of change zero over any 10-year period? Why or why not?

i. What is the average rate of change ov er the 100-year period described in the table? What does this average represent

j. What trend would you observe in a graph of this 100-year period?

Concept Connections

1. If the rate of change for a certain period is zero, what can be said about the graph in that period?

2. What do the symbols Δx and . Δy represent in the quotient $\frac{}{}$?