

Name \_\_\_\_\_

Date \_\_\_\_\_

8A: Algebra 1

Period \_\_\_\_\_

### Homework

1) Consider the function given by  $f(x) = x^2 + 3$ . Find its average rate of change from  $x = -1$  to  $x = 3$ . Show all work.

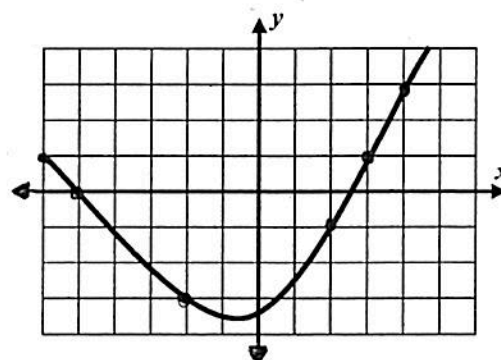
2) The function  $h(x)$  is given in the table below. What is the average rate of change over the interval  $2 \leq x \leq 6$ ? Show your work

| $x$ | $h(x)$ |
|-----|--------|
| 0   | 10     |
| 2   | 9      |
| 4   | 6      |
| 6   | 3      |

3) The function  $f(x)$  is given in the graph below. Find its average rate of change between the following points. Show all work.

a)  $x = -6$  to  $x = 4$

b)  $x = -2$  to  $x = 2$



4. In 1997, a town of 50,000 people started growing by 1,000 people each year. Complete the table showing the town's population every 5 years over a 15-year period.

| Year | Population |
|------|------------|
| 1997 | 50,000     |
| 2002 |            |
| 2007 |            |
| 2012 |            |

a) What is the average rate of change over the 15-year period?

b) Is the average rate of change constant? \_\_\_\_\_ What does this tell you about the type of function? \_\_\_\_\_.

c) Write the formula for the population,  $P$  as a function of  $x$ , in years.

5. The tables below show the amount of money in different bank customer's account on the first day of each month for five months. Which customer's account increased at a constant amount of money per month?

a)

b)

c)

| Customer 1 |        |
|------------|--------|
| Month      | Money  |
| 1          | 100    |
| 2          | 150    |
| 3          | 225    |
| 4          | 337.5  |
| 5          | 506.25 |

| Customer 2 |       |
|------------|-------|
| Month      | Money |
| 1          | 100   |
| 2          | 200   |
| 3          | 300   |
| 4          | 200   |
| 5          | 100   |

| Customer 3 |       |
|------------|-------|
| Month      | Money |
| 1          | 100   |
| 2          | 200   |
| 3          | 300   |
| 4          | 400   |
| 5          | 500   |

For #6 & #7 determine whether the following relations are linear, quadratic, cubic or neither. Show all work!

6.

| x  | y  |
|----|----|
| -2 | -7 |
| -1 | 7  |
| 0  | 9  |
| 1  | 11 |
| 2  | 25 |
| 3  | 63 |

7.

| x  | y   |
|----|-----|
| -2 | -6  |
| -1 | -9  |
| 0  | -10 |
| 1  | -9  |
| 2  | -6  |
| 3  | -1  |