Name _____ Date _____ Class _____

Additional Practice

Investigation 3

Growing, Growing, Growing

1. Suppose you deposit $1,000 in a savings account that earns interest of 6% per year on the current balance in the account.

a. If you leave your money in the account for 10 years, what will the value of your investment be at the end of the 10 years?

b. Write an equation relating the variables.

2. Janelle deposits $2,000 in the bank. The bank will pay 5% interest per year, compounded annually. This means that Janelle's money will grow by 5% each year.

a. Make a table showing Janelle's balance at the end of each year for 5 years.

b. Write an equation for calculating the balance b at the end of any year t.

c. Approximately how many years will it take for the original deposit to double in value? Explain your reasoning.

d. Suppose the interest rate is 10%. Approximately how many years will it take for the original deposit to double in value? How does this interest rate compare with an interest rate of 5%?

Additional Practice *(continued)*

For Exercises 3–6, tell whether the relationship between *x* and *y* is linear, inverse, exponential, or neither, and explain your answer. If the relationship is linear, inverse, or exponential, write an equation for the relationship.

3.

x	0	1	2	3	4	5
y	2	2.6	3.38	4.394	5.7122	7.42586

4.

x	0	1	2	3	4	5
y	500	550	605	665.5	732.05	805.255

5.

x	0	1	2	3	4	5
y	2.3	3.8	5.3	6.8	8.3	9.8

6.

x	1	2	3	4	5
y	$\frac{1}{2}$	$\frac{1}{4}$	$\frac{1}{6}$	$\frac{1}{8}$	$\frac{1}{10}$

7. Consider these three equations: $y = 5^x$, $y = 3^x$, and $y = 1 + 10^x$.

a. Sketch graphs of the equations on one set of axes.

b. What points, if any, do the three graphs have in common?

c. In which graph does the *y*-value increase at the greatest rate as the *x*-value increases?

d. Use the graphs to figure out which of the equations is not an example of exponential growth.

e. Use the equations to figure out which is not an example of exponential growth.