Name_____ Period_____

Review - Chapter 5

1. Complete the table below for an initial deposit of $10,000 at a rate of 1.5%. Round each amount to the nearest dollar.

Time	6 months	1 year	5 years	20 years
Simple Interest Balance	10,075	10,150	10,750	13,000
Compound Interest Balance	10,075	10,150	10,773	13,469

2. Identify each of the following for the function $f(x) = -4 \cdot 2^x$. Then graph the function.
   a. x-intercept none
   b. y-intercept (0, -4)
   c. asymptote y = 0
   d. domain all real numbers
   e. range y < 0
   f. interval(s) of increase/decrease deacreasing over the entire domain

3. Write the equation of each function after the translation described.
   a. f(x) = 5x after a translation 3 units to the left
      m(x) = 5(x + 3)
   b. g(x) = 2^x after a translation 6 units down
      m(x) = $2^x - 6$
   c. h(x) = $4x^2$ after a translation 5 units right and 3 units up
      m(x) = $4(x - 5)^2 + 3$

4. Write the exponential function represented by the table of values.

x	0	1	2	3
y	-3	-12	-48	-192

f(x) = $-3(4^x)$

5. Rewrite the function g(x) in terms of the basic function f(x).
   a. $f(x) = x^3$
      $g(x) = (x - 6)^3$
      $g(x) = f(x - 6)$
   b. $f(x) = -5^x$
      $g(x) = -5^x + 9$
      $g(x) = f(x) + 9$
6. Represent each translation, g(x), using coordinate notation.
   a. $f(x) = x^2$
      $g(x) = x^2 - 4$
      $(x, y) \rightarrow (x, y - 4)$
   b. $f(x) = 4^x$
      $g(x) = 4^{x-5}$
      $(x, y) \rightarrow (x + 5, y)$
7. Sam graphed the function $f(x) = -4^x$.
   a. Write a function that is a reflection of the function about the vertical line x = 0.
      $g(x) = -4^{-x}$
   b. Write a function that is a reflection of the function about the horizontal line y = 0.
      $g(x) = 4^x$
8. Describe each graph in relation to its basic function.
   a. Compare $f(x) = x^2 - 7$ to the basic function $h(x) = x^2$.
      The graph of f(x) is 7 units down from the graph of h(x).
   b. Compare $f(x) = b^{x-2}$ to the basic function $h(x) = b^x$.
      The graph of f(x) is 2 units to the right of the graph of h(x).
   c. Compare $f(x) = x^2 - 7$ to the basic function $h(x) = x^2$.
      The graph of f(x) is 7 units down from the graph of h(x).
9. Write each expression in a rational exponent form.
   a. $\sqrt[4]{6} = 6^{\frac{1}{4}}$
   b. $\sqrt[3]{x^2} = x^{\frac{2}{3}}$
10. Write each expression in radical form.
   a. $7^{\frac{1}{3}} = \sqrt[3]{7}$
   b. $6^{\frac{1}{9}} = \sqrt[9]{6}$
11. Solve each exponential equation for x.
   a. $3^{4x} = 531{,}441$
      X = 3
   b. $5^{x-1} = \frac{1}{625}$
      x = - 3