Name _____ Class _____ Date _____

7-6 Practice   *Form G*
Exponential Functions

Determine whether each table or rule represents a linear or an exponential function. Explain.

1.

x	1	2	3	4
y	3	9	27	81

2.

x	1	2	3	4
y	3	9	15	21

3. $y = 5 \cdot 2^x$

4. $y = 6 \cdot x^3$

5. $y = 3x - 8$

6. $y = 4 \cdot 0.3^x$

Evaluate each function for the given value.

7. $f(x) = 5^x$ for $x = 4$

8. $h(t) = 3 \cdot 4^t$ for $t = -3$

9. $y = 8 \cdot 0.7^x$ for $x = 3$

10. An investment of $8000 in a certain Certificate of Deposit (CD) doubles in value every seven years. The function that models the growth of this investment is $f(x) = 8000 \cdot 2^x$, where x is the number of doubling periods. If the investor does not withdraw any money from this CD, how much money will be available for withdrawal after 28 years?

11. A population of amoebas in a petri dish will triple in size every 20 minutes. At the start of an experiment the population is 800. The function $y = 800 \cdot 3^x$, where x is the number of 20 minute periods, models the population growth. How many amoebas are in the petri dish after 3 hours?

12. A new car costs $15,000 to build in 2010. The company's financial analysts expect costs to rise by 6% per year for the 10 years they are planning to build the car. The cost to build the car can be modeled by the function $f(t) = 15,000 (1.06)^t$, where t is the number of years after 2010. How much will it cost the company to build the car in 2020?

7-6 **Practice** (continued)   *Form G*

Exponential Functions

Evaluate each function over the domain {−2, −1, 0, 1, 2}. As the values of the domain increase, do the values of the range *increase* or *decrease*?

13. $f(x) = 3^x$

14. $y = 4.2^x$

15. $m(x) = 0.3^x$

16. $g(t) = 4 \cdot 3^x$

17. $y = 50 \cdot 0.1^x$

18. $f(x) = 2 \cdot 4^x$

Which function has the greater value for the given value of *x*?

19. $y = 5^x$ or $y = x^5$ for $x = 2$

20. $y = 300 \cdot x^3$ or $y = 100 \cdot 3^x$ for $x = 4$