

homework #14

Name: _____



8. Consider the equation $y = 150(2^x)$.
- Make a table of x and y -values for whole-number x -values from 0 to 5.
 - What do the numbers 150 and 2 in the equation tell you about the relationship between the variables x and y ?

For Exercises 9–12, find the growth factor and the y -intercept of the equation's graph.

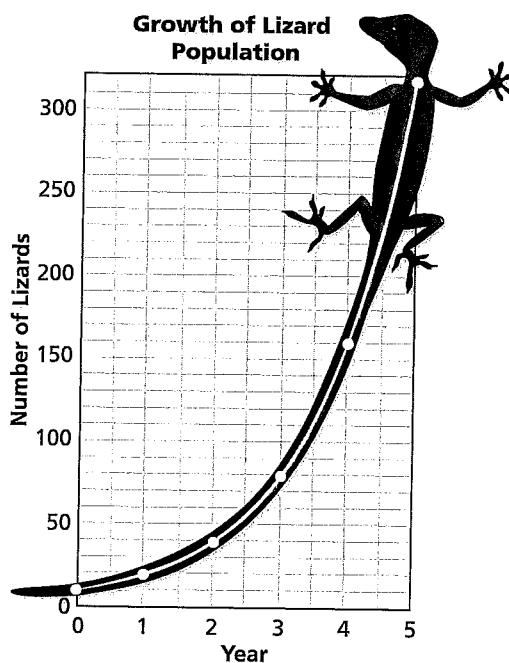
9. $y = 300(3^x)$

10. $y = 300(3)^x$

11. $y = 6,500(2)^x$

12. $y = 2(7)^x$

13. The following graph represents the population growth of a certain kind of lizard.



- What information does the point (2, 40) on the graph tell you?
- What information does the point (1, 20) on the graph tell you?
- When will the population exceed 100 lizards?
- Explain how you can use the graph to find the growth factor for the population.



ACTIVITY 6*continued***Properties of Exponents**
That's a Lot of Cats**Lesson 6-3**

Simplify. Express your answer in exponential form.

19. 5^0
20. $1,734^0$
21. $(b^3)^9$
22. $(4^4)^5$
23. $(6^3)^4$
24. $(99^9)^0$
25. Which of the following is $(4^x)^y$ simplified in exponential form?
 - A. 4^{xy}
 - B. 4^{x-y}
 - C. 4^{x+y}
 - D. $4^{\frac{x}{y}}$
26. Victor was asked to simplify this expression in exponential form: $8^0 + 12^0$. He says the answer is 2. Do you agree with Victor? Explain your reasoning.
27. When raising a power to another power, how are the exponents simplified?
 - A. The exponents are multiplied.
 - B. The exponents are subtracted.
 - C. The exponents are divided.
 - D. The exponents are added.

MATHEMATICAL PRACTICES**Look For and Make Use of Structure**

28. In the table below, summarize the rules for exponents you discovered in this activity.

Situation	Verbal Description	Numeric Example
Multiplying powers with the same base		
Dividing powers with the same base		
Raising a term to an exponent of zero		
Raising a power to another exponent		