

Name _____

Date _____

Lesson

1.1

Extra Practice

Write the product using exponents.

1. $6 \cdot 6 \cdot 6 \cdot 6 \cdot 6$ 6^5

3. $4 \cdot 4 \cdot 4 \cdot 4$ 4^4

5. $3 \cdot 3 \cdot 8 \cdot 8 \cdot 8$ $3^2 \cdot 8^3$

7. $9 \cdot 9 \cdot 9 \cdot 9 \cdot 3 \cdot 3 \cdot 3 \cdot 3 \cdot 3$ $9^4 \cdot 3^5$

2. $2 \cdot 2 \cdot 2 \cdot 2 \cdot 2 \cdot 2 \cdot 2$ 2^7

4. $7 \cdot 7 \cdot 7$ 7^3

6. $10 \cdot 10 \cdot 5 \cdot 5 \cdot 5 \cdot 5$
 $10^2 \cdot 5^4$

Evaluate the expression.

8. $9^2 = 81$

10. $3^4 = 81$

12. Your friend evaluates the power
- -3^2
- .
-
- Is your friend correct? Explain.

9. $-5^4 = -625$

11. $8^3 = 512$

$$\boxed{-3^2 = -3 \cdot 3 = -9}$$
 yes!

13. The five spheres in a set have different sizes. The smallest concrete sphere in the set has a volume of 5 cubic feet. The volume of each of the other spheres is 3 times the volume of the next smaller one. Write an expression involving a power that represents the volume of the largest sphere. What is the volume of the largest sphere?

$$5 \cdot 3^4 = 405$$

Evaluate the expression.

14. $7 + (-2) \cdot 3^2$ $7 + -2 \cdot 9$
 $7 + -18$
 (-11)

15. $(15^2 - 5 \cdot 4^2) \div 5$ $(225 - 5 \cdot 16) \div 5$
 $(225 - 80) \div 5$
 $145 \div 5$
 (29)

16. $\frac{1}{4}(2^5 - 8)$ $\frac{1}{4}(32 - 8)$
 $\frac{1}{4}(24) = (6)$

17. $(4^3 \cdot 2^2 - 3^2)$
 $64 \cdot 4 - 9$
 $256 - 9$
 (247)

18. Copy and complete the table. Compare the values of
- $2^x - 2$
- with the values of
- 2^{x-2}
- .

x	2	3	4	5	6
$2^x - 2$	$2^2 - 2 = (2)$	$2^3 - 2 = (6)$	$2^4 - 2 = (14)$	$2^5 - 2 = (30)$	$2^6 - 2 = (62)$
2^{x-2}	$2^{2-2} = (1)$	$2^{3-2} = (2)$	$2^{4-2} = (4)$	$2^{5-2} = (8)$	$2^{6-2} = (16)$