REVIEW: Exponents and Powers

Name _____

Key Concept and Vocabulary

multiplication   exponent

$2 \cdot 2 \cdot 2 = 2^3$

base

Exponent

4 to the first power

$4^1 = 4$ $4^2 = 4 \cdot 4$ $4^3 = 4 \cdot 4 \cdot 4$
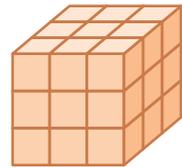
4 squared   4 cubed
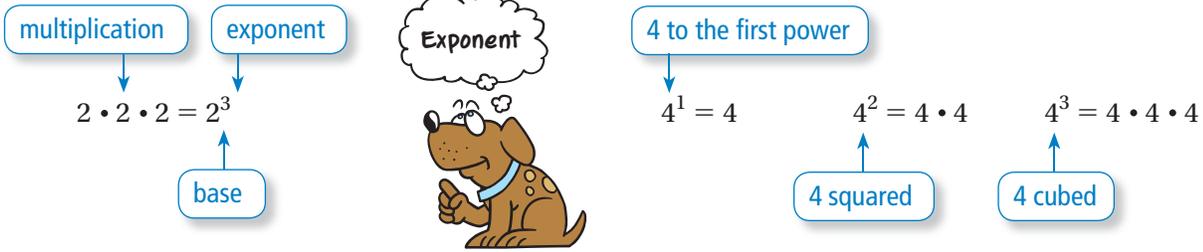
Skill Examples

1. $3^2 = 3 \cdot 3 = 9$

2. $2^4 = 2 \cdot 2 \cdot 2 \cdot 2 = 16$

3. $4^3 = 4 \cdot 4 \cdot 4 = 64$

4. $5^4 = 5 \cdot 5 \cdot 5 \cdot 5 = 625$

5. $9^5 = 9 \cdot 9 \cdot 9 \cdot 9 \cdot 9 = 59{,}049$

Application Example

6. How many small cubes are in the stack?

$3^3 = 3 \cdot 3 \cdot 3$
$= 27$

27 small cubes are in the stack.

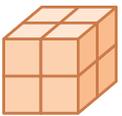## PRACTICE MAKES *PURR*-FECT®

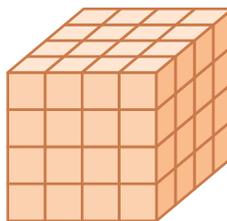*Check your answers at BigIdeasMath.com.*

Find the value.

7. $3^4 = \underline{81}$

8. $4^5 = \underline{1024}$

9. $12^3 = \underline{1728}$

10. $18^1 = \underline{18}$

11. $5^6 = \underline{15{,}625}$

12. $2^{10} = \underline{1024}$

13. $8^2 = \underline{64}$

14. $7^3 = \underline{343}$

Use an exponent to rewrite the expression.

15. $4 \cdot 4 \cdot 4 \cdot 4 = \underline{4^4}$

16. $1 \cdot 1 \cdot 1 = \underline{1^3}$

17. $5 \cdot 5 \cdot 5 = \underline{5^3}$

18. $3 \cdot 3 \cdot 3 \cdot 3 \cdot 3 = \underline{3^5}$

How many small cubes are in the stack?

19. $2^3 = 8$ small cubes are in the stack.

20. $4^3 = 64$ small cubes are in the stack.

21. **FLYING SAUCERS** You saw 5 flying saucers. Each flying saucer had 5 aliens. Each alien had 5 eyes. How many alien eyes were there altogether? Explain your reasoning.

125 alien eyes; $5^3 = 5 \cdot 5 \cdot 5 = 125$