REVIEW: Exponents

Name _____

Key Concept and Vocabulary

multiplication   exponent

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

base

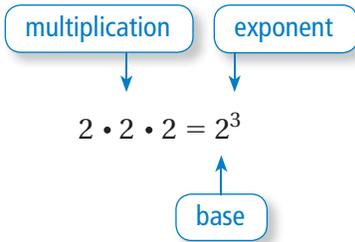Exponent

4 to the first power

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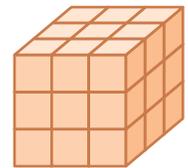
4 squared   4 cubed

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.

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Check your answers at BigIdeasMath.com.

Find the value.

7. $3^4 = $ __81__

8. $4^5 = $ __1024__

9. $12^3 = $ __1728__

10. $18^1 = $ __18__

11. $5^6 = $ __15,625__

12. $2^{10} = $ __1024__

13. $8^2 = $ __64__

14. $7^3 = $ __343__

Use an exponent to rewrite the expression.

15. $4 \cdot 4 \cdot 4 \cdot 4 = $ __4^4__

16. $1 \cdot 1 \cdot 1 = $ __1^3__

17. $5 \cdot 5 \cdot 5 = $ __5^3__

18. $3 \cdot 3 \cdot 3 \cdot 3 \cdot 3 = $ __3^5__

How many small cubes are in the stack?
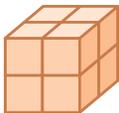
19. __$2^3 = 8$ small cubes are in the stack.__
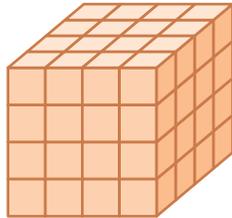
20. __$4^3 = 64$ small cubes are in the stack.__

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