

Key Concept and Vocabulary

multiplication

↓

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


↑

base

exponent

↓

Exponent



4 to the first power

↓

 $4^1 = 4$

4 squared

↑

 $4^2 = 4 \cdot 4$

4 cubed

↑

 $4^3 = 4 \cdot 4 \cdot 4$

Skill Examples

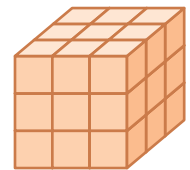
1. $3^2 = 3 \cdot 3 = 9$
2. $2^4 = 2 \cdot 2 \cdot 2 \cdot 2 = 16$
3. $4^3 = 4 \cdot 4 \cdot 4 = 64$
4. $5^4 = 5 \cdot 5 \cdot 5 \cdot 5 = 625$
5. $9^5 = 9 \cdot 9 \cdot 9 \cdot 9 \cdot 9 = 59,049$

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. $3^4 =$ _____

8. $4^5 =$ _____

9. $12^3 =$ _____

10. $18^1 =$ _____

11. $5^6 =$ _____

12. $2^{10} =$ _____

13. $8^2 =$ _____

14. $7^3 =$ _____

Use an exponent to rewrite the expression.

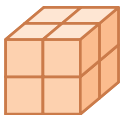
15. $4 \cdot 4 \cdot 4 \cdot 4 =$ _____

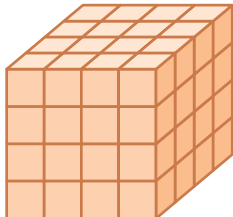
16. $1 \cdot 1 \cdot 1 =$ _____

17. $5 \cdot 5 \cdot 5 =$ _____

18. $3 \cdot 3 \cdot 3 \cdot 3 \cdot 3 =$ _____

How many small cubes are in the stack?

19.  _____

20.  _____

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.
