✓ Vocabulary and Concept Check

1. **VOCABULARY** How are exponents and powers different?

2. **VOCABULARY** Is 10 a perfect square? Is 100 a perfect square? Explain.

3. **WHICH ONE DOESN'T BELONG?** Which one does *not* belong with the other three? Explain your reasoning.

$$2^4 = 2 \times 2 \times 2 \times 2 \qquad 3 + 3 + 3 + 3 = 3(4) \qquad 3^2 = 3 \times 3 \qquad 5 \cdot 5 \cdot 5 = 5^3$$

Practice and Problem Solving

Write the product as a power.

❶ 4. 9×9

5. 13×13

6. $15 \times 15 \times 15$

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

8. $14 \times 14 \times 14$

9. $8 \cdot 8 \cdot 8 \cdot 8$

10. $11 \times 11 \times 11 \times 11 \times 11$

11. $7 \cdot 7 \cdot 7 \cdot 7 \cdot 7 \cdot 7$

12. $16 \cdot 16 \cdot 16 \cdot 16$

13. **ERROR ANALYSIS** Describe and correct the error in writing the product as a power.

✗ $4 \cdot 4 \cdot 4 = 3^4$

Find the value of the power.

❷ 14. 5^2

15. 4^3

16. 2^5

17. 14^2

Use a calculator to find the value of the power.

18. 7^6

19. 4^8

20. 12^4

21. 17^5

22. **ERROR ANALYSIS** Describe and correct the error in finding the value of the power.

✗ $8^3 = 8 \cdot 3 = 24$

23. **POPULATION** The population of Virginia is about 8×10^6. About how many people live in Virginia?

24. **FIGURINES** The smallest figurine in a gift shop is 2 inches tall. The height of each figurine is twice the height of the previous figurine. Write a power to represent the height of the tallest figurine. Then find the height.