

Vocabulary and Concept Check

- VOCABULARY** How are exponents and powers different?
- VOCABULARY** Is 10 a perfect square? Is 100 a perfect square? Explain.
- WHICH ONE DOESN'T BELONG?** Which one does *not* belong with the other three? Explain your reasoning.

$$2^4 = 2 \times 2 \times 2 \times 2$$

$$3 + 3 + 3 + 3 = 3(4)$$

$$3^2 = 3 \times 3$$

$$5 \cdot 5 \cdot 5 = 5^3$$

Practice and Problem Solving

Write the product as a power.

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.

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

Find the value of the power.

14. 5^2
15. 4^3
16. 2^5
17. 14^2

Use a calculator to find the value of the power.

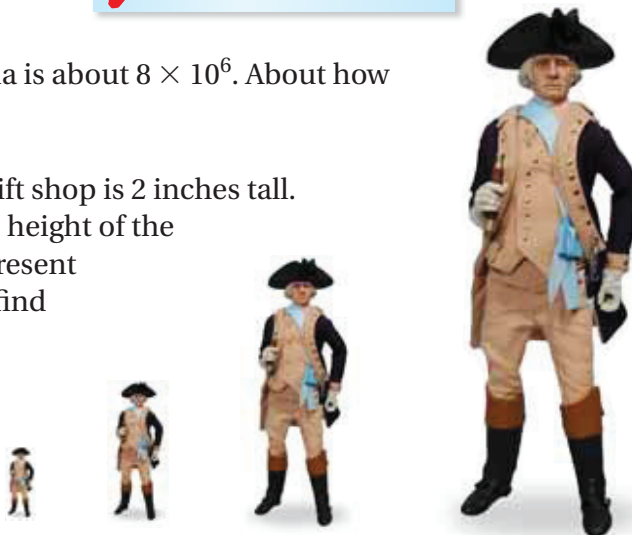
18. 7^6
19. 4^8
20. 12^4
21. 17^5

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

X $8^3 = 8 \cdot 3 = 24$

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.



Determine whether the number is a perfect square.

- 3 25. 8 26. 4 27. 81 28. 44
 29. 49 30. 125 31. 150 32. 144

33. **PAINTING** A square painting measures 2 meters on each side. What is the area of the painting in square centimeters?

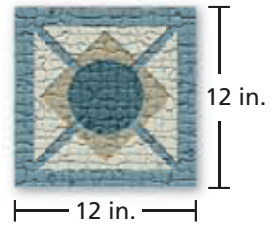


34. **NUMBER SENSE** Write three powers that have values greater than 120 and less than 130.

35. **CHECKERS** A checkers board has 64 squares. How many squares are in each row?

36. **PATIO** A landscaper has 125 tiles to build a square patio. The patio must have an area of at least 80 square feet.

- a. What are the possible arrangements for the patio?
 b. How many tiles are not used in each arrangement?

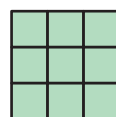


37. **PATTERNS** Copy and complete the table. Describe what happens to the value of the power as the exponent decreases. Use this pattern to find the value of 4^0 .

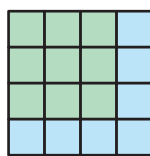
Power	4^6	4^5	4^4	4^3	4^2	4^1
Value	4096	1024				

38. **REASONING** Consider the equation $56 = \square^2$. The missing number is between what two whole numbers?

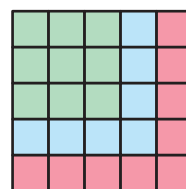
39. **Repeated Reasoning** How many blocks do you need to add to Square 6 to get Square 7? to Square 9 to get Square 10? to Square 19 to get Square 20? Explain.



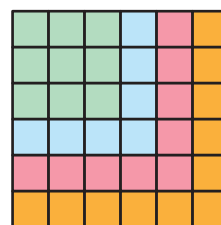
Square 3



Square 4



Square 5



Square 6



Fair Game Review what you learned in previous grades & lessons

Find the value of the expression. (*Skills Review Handbook*)

40. 6×14 41. 11×15 42. $56 \div 7$ 43. $112 \div 16$

44. **MULTIPLE CHOICE** You buy a box of gum that has 12 packs. Each pack has 5 pieces. Which expression represents the total number of pieces of gum?

(*Skills Review Handbook*)

- (A) $12 + 5$ (B) $12 - 5$ (C) 12×5 (D) $12 \div 5$