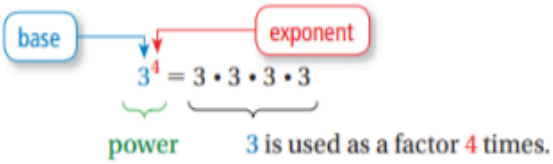
Chapter 1.1 Notes

1.1 Lesson

Key Vocabulary
power, *p. 4*
base, *p. 4*
exponent, *p. 4*
perfect square, *p. 5*

A **power** is a product of repeated factors. The **base** of a power is the repeated factor. The **exponent** of a power indicates the number of times the base is used as a factor.



Remember
You can use the dot symbol • to indicate multiplication. For example, the product of 3 and 5 can be expressed as 3×5 or $3 \cdot 5$.

Power	Words
3^2	Three *squared*, or three to the second
3^3	Three *cubed*, or three to the third
3^4	Three to the fourth
3^5	Three to the fifth

EXAMPLE 1 Writing Expressions as Powers

Write each product as a power.

a. $7 \cdot 7 \cdot 7 \cdot 7 \cdot 7$

b. $12 \times 12 \times 12$

c. $100 \times 100 \times 100 \times 100 \times 100 \times 100$

Try It **Write the product as a power.**

1. $2 \times 2 \times 2$
2. $6 \cdot 6 \cdot 6 \cdot 6 \cdot 6 \cdot 6$
3. $15 \times 15 \times 15 \times 15$
4. $20 \cdot 20 \cdot 20 \cdot 20 \cdot 20 \cdot 20 \cdot 20$

EXAMPLE 2 Finding Values of Powers

Find the value of each power.

a. 7^2

b. 5^3

Write as repeated multiplication.

Simplify.

The square of a whole number is a **perfect square**.

EXAMPLE 3 Identifying Perfect Squares

Determine whether each number is a perfect square.

a. 64

b. 20

EXAMPLE 4 Modeling Real Life

A life-size MONOPOLY® game board is a square with a side length of 11 yards. What is the area of the game board?

Use a verbal model to solve the problem.

$$\text{Area of game board} = (\text{Side length})^2$$

The area of the game board is square yards.