Visual Learning Animation
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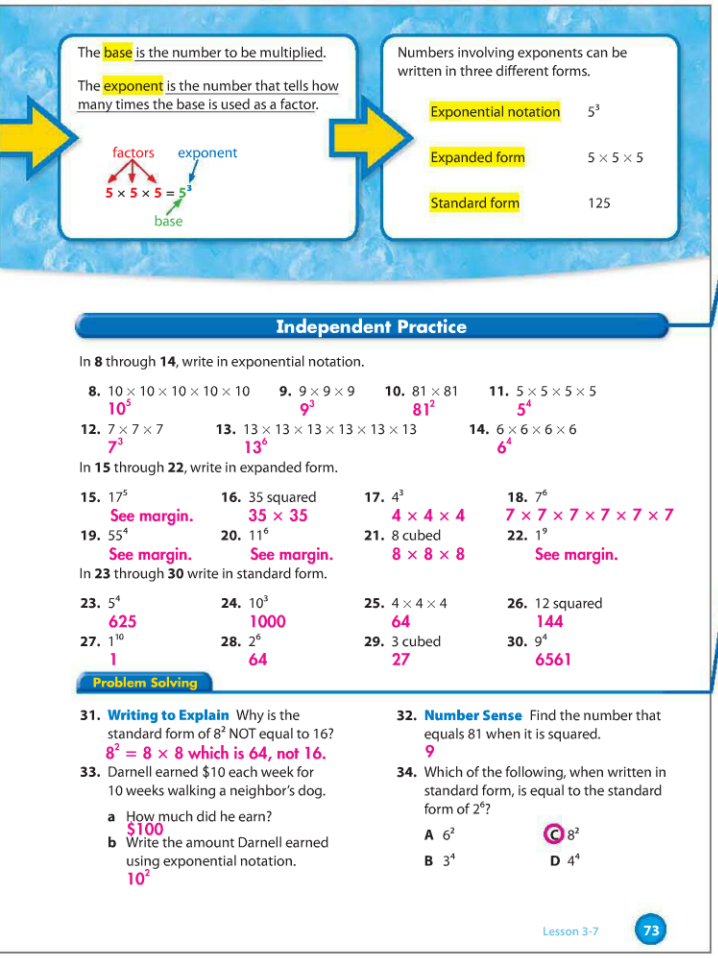
What is true about the factors of a number written in exponential notation? [All of the factors are the same.]

Numbers involving exponents can be written in three different forms.

Exponential notation	5^3
Expanded form	$5 \times 5 \times 5$
Standard form	125

When might you want to use exponential notation rather than expanded form? [Use exponential notation when the exponent is large. It can be faster than writing out the repeated multiplication in expanded form.

Prevent Misconceptions
Some students may wrongly multiply the base by the exponent to find the standard form of a number written in exponential notation. Encourage students to write the number in expanded form first and then in standard form to avoid this error.



3 Independent Practice

Remind students that a base is the number to be multiplied, and the exponent is the number that tells how many times the base is used as a factor. Use Exercise 9 as an example. *What is the base?* [9] *What is the exponent?* [3] *So how many times is the base used as a factor?* [3 times]

Problem Solving

Exercise	Content
31	Communicate Math Understanding Meaning of Exponential Notation
32	Square Numbers
33a	Multiplication (10 × 10)
33b	Write Numbers in Exponential Notation
34	Write Numbers in Standard Form

Students use underlying processes and mathematical tools for Exercises 31–34. Remind students to check for reasonableness when solving each problem.

Exercise 31
Explain to students that an exponent is also called a power. *8 raised to the fourth power means 8^4. How many times is 8 used as a factor?* [4 times]

Exercise 34
Test-Taking Tip: Make Smart Choices Encourage students to eliminate wrong answers. *What is the standard form of 2^6?* [64] *What answers can you eliminate based on this information?* [Choices A, B, and D]

15. $17 \times 17 \times 17 \times 17 \times 17$
18. $7 \times 7 \times 7 \times 7 \times 7 \times 7$
19. $55 \times 55 \times 55 \times 55$
20. $11 \times 11 \times 11 \times 11 \times 11 \times 11$
22. $1 \times 1 \times 1 \times 1 \times 1 \times 1 \times 1 \times 1 \times 1$