

Exponents

You can use exponential notation to write a number that is being multiplied by itself.

There are two parts in exponential notation. The **base** tells you what factor is being multiplied. The **exponent** tells you how many of that factor should be multiplied together. The exponent is *not* a factor.

exponent



$8^2 = 8 \times 8$ The base is 8, so 8 is the factor to be multiplied.



The exponent is 2, so 2 factors of 8 should be multiplied together.

base

You can write 8^2 in two other forms.

In **expanded** form, you write out your factors. Since 8^2 means you multiply two factors of 8, 8^2 in expanded form is 8×8 .

In **standard** form, you write down the product of the factors. Since $8 \times 8 = 64$, 64 is the standard form of 8^2 .

Write in exponential notation.

1. $2 \times 2 \times 2$ _____

2. $6 \times 6 \times 6 \times 6 \times 6$ _____

Write in expanded form.

3. 1^4 _____

4. 5^3 _____

Write in standard form.

5. $2 \times 2 \times 2 \times 2$ _____

6. 8^3 _____

7. A used car lot has 9 lanes for cars and 9 rows for cars in each lane. What is the exponential notation for the number of spaces on the lot? Can the owner fit 79 cars on the lot?
- _____

Name _____

Practice

3-7

Exponents

For questions 1–4, write in exponential notation.

1. $13 \times 13 \times 13$ _____
2. $8 \times 8 \times 8 \times 8 \times 8 \times 8$ _____
3. 64×64 _____
4. $4 \times 4 \times 4 \times 4$
 $\times 4 \times 4 \times 4 \times 4$ _____

For questions 5–8, write in expanded form.

5. 2^5 _____
6. 20 squared _____
7. 11^4 _____
8. 9 cubed _____

For questions 9–12, write in standard form.

9. $4 \times 4 \times 4$ _____
10. 14 squared _____
11. 6^5 _____
12. $9 \times 9 \times 9 \times 9$ _____

13. **Number Sense** Which of these numbers, written in expanded form, is equal to 625?

- A $5 \times 5 \times 5 \times 5$
- B 5×5
- C $5 \times 5 \times 5$
- D $5 \times 5 \times 5 \times 5 \times 5$

14. **Number Sense** Find the number equal to 6 raised to the second power.

- A 18
- B 36
- C 6
- D 12

15. **Explain It** Explain what 4 raised to the fourth power means.
