Answers and talk notes

Explore Numerical Expressions with Exponents

What your student is learning

Tonight we learn what an exponent means. A small raised number tells us how many times a number is used as a factor.

Answers

Ask your student to explain before you look.

1. **C.** 5. In 5^4 the base is 5. It is the number that gets multiplied, and the small 4 is the exponent.
2. **A.** 7^3. $7 \times 7 \times 7 = 7^3$. There are three factors of 7, so the exponent is 3.
3. **D.** $2 \times 2 \times 2 \times 2$. $2^4 = 2 \times 2 \times 2 \times 2$. The exponent 4 says to use four 2s as factors.
4. **B.** 64. $4^3 = 4 \times 4 \times 4 = 16 \times 4 = 64$.
5. **C.** 1,000. $10^3 = 10 \times 10 \times 10 = 1{,}000$.

Talk about it

In 2^3, what does the small 3 tell us? How many 2s are multiplied?

Home mission

Put 1 bean or coin on the table. Pretend a switch doubles the sound. Add beans until there are twice as many. Do it 3 times. Ask: how many now? Write the power with a 2.

When they are stuck, ask

- How many times does the small number tell us to write the base? Let's write that many.
- Which number is the base — the one we multiply again and again?
- Let's multiply just two numbers at a time and write each step.

Try not to say

- 2^3 means 2 times 3.
- Just add the base and the exponent.
- The little number gets multiplied by the big number.