Answers and talk notes

Write and Evaluate Numerical Expressions with Exponents

What your student is learning

Tonight we write one numerical expression for a whole situation and evaluate it using the order of operations, including powers like 2^3.

Answers

Ask your student to explain before you look.

1. **A.** Find 3^2. Find 3^2 first. Powers come before adding, so $6 + 3^2 = 6 + 9 = 15$.
2. **C.** 14. $2 + 3 \times 4 = 2 + 12 = 14$. Multiply before you add.
3. **B.** 6. $10 - 2^2 = 10 - 4 = 6$. Find the power first.
4. **D.** 24. $3 \times 2^3 = 3 \times 8 = 24$. Find the power first, then multiply.
5. **C.** $4 + 5^2$. $4 + 5^2$ means four more than 5 squared. The 5 is squared, then 4 is added.
6. **B.** 23. $5 + 2 \times 3^2 = 5 + 2 \times 9 = 5 + 18 = 23$.

Talk about it

Which part of the expression do you evaluate first, and why?

Home mission

Imagine a ticket order: 3 tickets at \$10 and 2 tickets at 2^2 dollars each. Ask your student to say the expression out loud, then the total. Which step comes first?

When they are stuck, ask

- Which stage comes first here?
- What does that exponent tell you to multiply?
- Did you multiply before you added?

Try not to say

- Just go left to right.
- 2^3 means 2 times 3.
- The order doesn't really matter.