

Exponents (Including Laws of Exponents)

Chapter 5: Exponents (Including Laws of Exponents) · Topic 1

Key Concept

An exponent, like the 3 in 2^3 , tells us how many times to multiply the base number (2) by itself: $2 \times 2 \times 2 = 8$.

The law of exponents for multiplication states that when multiplying same-base powers, we add the exponents: $a^m \times a^n = a^{(m+n)}$.

The law for division states that when dividing same-base powers, we subtract the exponents: $a^m \div a^n = a^{(m-n)}$.

Understanding exponent laws simplifies complex calculations and is foundational for algebra and higher-level mathematics.

Quick Revision Notes

- An exponent shows repeated multiplication.
- $2^3 = 2 \times 2 \times 2 = 8$.
- Multiplication law: $a^m \times a^n = a^{(m+n)}$.
- Division law: $a^m \div a^n = a^{(m-n)}$.
- These laws simplify calculations.
- Exponents are foundational for algebra.
- Practice builds exponent skills.
- Exponents appear in higher-level maths.

Practice Questions

- 1 Calculate 4^3 .
- 2 Simplify $2^4 \times 2^2$ using exponent laws.
- 3 Simplify $5^6 \div 5^3$.
- 4 Explain what an exponent means in your own words.
- 5 Solve three exponent problems.
- 6 Discuss why exponent laws are useful.