

Simplify Using Laws Answer Key

- 1) Repeated multiplication: $(2 \times 2 \times 2) \times (2 \times 2)$
Simplified: 2^5
- 2) Repeated multiplication: $(5 \times 5 \times 5 \times 5 \times 5) \div (5 \times 5)$
Simplified: 5^3
- 3) Repeated multiplication: $(4 \times 4)(4 \times 4)(4 \times 4)$
Simplified: 4^6
- 4) Repeated multiplication: $(3 \times 6)(3 \times 6)$
Simplified: $3^2 \times 6^2$
- 5) Repeated multiplication: $(20 \div 5)(20 \div 5)$
Simplified: $20^2 \div 5^2$
- 6) Repeated multiplication: $(8 \times 8) \times (8 \times 8 \times 8 \times 8)$
Simplified: 8^6
- 7) Repeated multiplication: $(7 \times 7 \times 7)(7 \times 7 \times 7)$
Simplified: 7^6
- 8) Repeated multiplication: $(10 \times 10 \times 10 \times 10 \times 10 \times 10) \div (10 \times 10 \times 10 \times 10)$
Simplified: 10^2

Teacher's Guide

- Model the first problem together so students see how repeated multiplication connects to the exponent law.
- Encourage students to cross out matching factors in quotient problems before writing the simplified exponent.
- Have students identify the law used after simplifying to reinforce vocabulary and understanding.
- Pair students to compare their repeated multiplication before checking their final answers.
- For students needing support, use smaller exponents such as 2 or 3 before moving to larger ones.
- Challenge advanced students to explain why expanding is helpful even though the exponent laws provide a faster method.
- As an extension, ask students to create one expression for each exponent law, expand it, and then simplify it using the appropriate rule.