

Power Steps Answer Key

1. $(2^3)^2 \times 2^4 = 2^6 \times 2^4 = 2^{10}$
2. $(5^6 \div 5^2) \times 5^3 = 5^4 \times 5^3 = 5^7$
3. $(3^2 \times 3^4) \div 3^3 = 3^6 \div 3^3 = 3^3$
4. $(7^2)^3 \div 7^4 = 7^6 \div 7^4 = 7^2$
5. $(4 \times 6)^2 \times 4^3 = 4^2 \times 6^2 \times 4^3 = 4^5 \times 6^2$
6. $(18 \div 3)^2 \times 3^2 = 18^2 \div 3^2 \times 3^2 = 18^2$
7. $(x^3)^2 \times x^5 = x^6 \times x^5 = x^{11}$
8. $(y^8 \div y^3) \div y^2 = y^5 \div y^2 = y^3$
9. $(m^2n^3)^2 \times m^3 = m^4n^6 \times m^3 = m^7n^6$
10. $(a^5b^2) \div (a^2b) \times a = a^3b \times a = a^4b$
11. $(2p^2q)^3 \div p^2 = 2^3p^6q^3 \div p^2 = 2^3p^4q^3$
12. $((r^2)^3 \times r^4) \div r^5 = r^6 \times r^4 \div r^5 = r^{10} \div r^5 = r^5$

Teacher's Guide

- Model one multi-step example and identify each exponent law before simplifying.
- Encourage students to simplify one step at a time instead of trying to complete the entire problem mentally.
- Have students write the name of the exponent law used beside each step to reinforce vocabulary.
- For students needing support, provide a chart of the exponent laws and allow them to highlight the part of the expression affected by each law.
- Increase engagement by asking pairs of students to compare their solution steps, not just their final answers.
- Extend learning by having students create one multi-step exponent problem that uses at least three different exponent laws and exchange it with a classmate.