

Practice Worksheet for Law of Exponents
Answer Key

Use the laws of exponents you discovered in your investigation to simplify each of the following expressions with positive exponents.

1. $3^3 \cdot 3^4$ 2187

11. 3^{-4} $\frac{1}{81}$

2. $x^8 \cdot x^5$ x^{13}

12. $\frac{8^5}{8^2}$ 512

3. $3x^3 \cdot 4x^2$ $12x^5$

13. 27^0 1

4. $x^2y^4 \cdot x^5y^{12}$ x^7y^{16}

14. $\frac{12x^5}{4x^2}$ $3x^3$

5. $(5^2)^3$ 15,625

15. $\frac{2x^6y^5}{16x^4y}$ $\frac{x^2y^4}{8}$

6. $(x^4)^5$ x^{20}

16. $\frac{3^5}{3^7}$ $\frac{1}{9}$

7. $(2x)^3$ $8x^3$

17. $\frac{4x^5y^2}{20x^3y^4}$ $\frac{x^2}{5y^2}$

8. $(x^4y^5)^3$ $x^{12}y^{15}$

18. $\frac{12xy^2}{3x^4y^2}$ $\frac{4}{x^3}$

9. $(3x^4y^3z^5)^3$ $27x^{12}y^9z^{15}$

19. $\left(\frac{2x^4}{3x}\right)^3$ $\frac{8x^9}{27}$

10. $(2x^3)^4(-3x^2y^3)^2$ $144x^{16}y^6$

20. $\frac{18x^{-5}y^4}{12x^{-3}y^{-3}}$ $\frac{3y^7}{2x^2}$