Nickname: _____No.__ M2/__ ID: 1

© 2026 Kuta Software LLC. All rights reserved.

Worksheet 5.1 Simplifying exponential expressions

Simplify. Your answer should contain only positive exponents. (Send a photo of your solutions to my personal line chat.)

1) $2xy^{-4}z^{0} \cdot x^{0}y^{3}z^{0}$

A) $\frac{24y^5x^2}{z^3}$ B) $\frac{4x^2}{z^8}$

C) $\frac{2x}{y}$ D) $6zx^4$

2) $4m^{-4}n^{2}p^{2} \cdot 4m^{-4}n^{-2}p^{-3}$

A) $\frac{2n^5p^4}{m^4}$ B) $\frac{4}{n^2p}$

C) $\frac{2m^5p^3}{n^6}$ D) $\frac{16}{m^8p}$

3) $bca^{4} \cdot 3a^{-1}b^{4}c^{3} \cdot a^{2}b^{4}c^{-1}$

A) $\frac{9a}{b^2}$ B) $\frac{4a^2}{c}$

C) $3a^5b^9c^3$ D) $\frac{12b^2}{c}$

4) $x^{3}y^{0} \cdot 2yz^{2}$

A) $\frac{8y^7}{x^5z^2}$ B) $\frac{18x^3z^7}{y^5}$

C) $2x^3yz^2$ D) $\frac{y^3z^3}{x^2}$

5) $2x \cdot 2y^{3}z^{0}$

A) $\frac{8z^6}{xy^3}$ B) $8x^3z^9y^2$

C) $\frac{4x^6z^3}{y}$ D) $4xy^3$

6) $\left(2p^{4}q^{2}\right)^{-1}$

A) $\frac{p^6}{q^2}$ B) $\frac{p^8}{9m^4q^8}$

C) $\frac{1}{2qp^4}$ D) $\frac{1}{2p^4q^2}$

7) $\left(pq^{3}\right)^{-4}$

A) $9m^2p^2q^2$ B) $8q^6$

C) $\frac{1}{p^4q^{12}}$ D) $\frac{1}{9p^6}$

© 2026 Kuta Software LLC. All rights reserved. Made with Infinite Algebra 2.

LIVEWORKSHEETS

8) $(4pq^4r^2)^3$

A) r^3

B) $\frac{p^4q^4}{16r^4}$

C) $\frac{r^{16}}{p^8q^4}$

D) $64p^3q^{12}r^6$

9) $(4m^{-3}p^2)^3$

A) $27m^3p^3n^6$

B) $\frac{64p^6}{m^9}$

C) $\frac{9m^4p^6}{n^6}$

D) $\frac{27m^3}{n^3}$

10) $(3p^{-1}q^{-1}r^3)^2$

A) $\frac{16p^8}{q^6}$

B) $\frac{9r^6}{p^2q^2}$

C) $4p^2q^8r^4$

D) $\frac{4p^8}{q^6}$

11) $\frac{y^{-2}z^2}{4x^{-3}y^2}$

A) $\frac{3y^4}{2x^2z}$

B) $\frac{z^2x^3}{4y^4}$

C) $\frac{3z^2x^3y}{2}$

D) $\frac{3}{xy^7z^2}$

12) $\frac{y^{-1}}{3x^4y^2}$

A) $\frac{1}{3y^3x^4}$

B) $\frac{y^2}{x^2}$

C) $\frac{4z^4}{x}$

D) $\frac{zy}{3x^2}$

13) $\frac{x^4y^2}{2yz^2}$

A) $\frac{x^3z^2}{2y^2}$

B) $\frac{1}{2x^5}$

C) $\frac{x^4y}{2z^2}$

D) $\frac{3x^2z^2}{y}$

14) $\frac{3y^{-2}z^{-2}}{xy^4z^2}$

A) $\frac{2z}{y^6}$

B) $\frac{3}{y^6z^4x}$

C) $\frac{1}{4y^4xz^4}$

D) $\frac{2x^7}{y}$

15) $\frac{pm^4n^3}{3m^{-1}n^4}$

A) $\frac{m^5p}{3n}$

B) $\frac{2m^6}{n^5p}$

C) $\frac{3m^2n^2}{4p^3}$

D) $2np^5$

© 2026 Kuta Software LLC. All rights reserved.

Made with Infinite Algebra 2.
LIVEWORKSHEETS