

Exponent Practice

Using the Laws of Exponents, simplify the following expressions.

$\left(\frac{3}{x}\right)^3$ $\frac{27}{x^3}$	$(a^3b^4)^5$ $a^{15}b^{20}$	$(-2x^3)^2$ $4x^6$	$x^4 \cdot 4x^2 \cdot 2x$ $8x^7$
$(-x^2)(2x^4)^3$ $-8x^{14}$	$5a^4 \cdot a^{-3}$ $5a$	$2x^2 \cdot 3y^3 \cdot x^4$ $6x^6y^3$	$6x^4 \cdot 2xy \cdot 3y^3$ $36x^5y^4$
$(-x^4)(-x)^2(-x)$ x^7	$\frac{x^5}{x^3}$ x^2	$\frac{a^5b^7}{a^4}$ ab^7	$\frac{12x^4y^4}{3x^2y}$ $4x^2y^3$
$\left(\frac{4a^5}{2a^3}\right)^{-3}$ $(2a^2)^{-3}$ $\frac{1}{8a^6}$	$(3x^2y)^{-2}(6x^4y^5)$ $\frac{6x^4y^5}{9x^4y^2}$ $\frac{2y^3}{3}$	$\frac{(2a^3b^2)^3}{(2a^2b)^2}$ $\frac{8a^9b^6}{4a^4b^2}$ $2a^5b^4$	$\left(\frac{8x^4y^2}{10x^8y^4}\right)^{-2}$ $\frac{25x^8y^4}{16}$

Exponent Challenge

$$\frac{6x^4 \cdot 2xy \cdot 3y^5}{2x^3 \cdot 3y^3 \cdot x^2}$$

$$6y^3$$

$$\frac{64a^5b^2c}{16a^3b^5c}$$

$$\frac{4a^2}{b^3}$$

$$\left(\frac{36a^8b^3c}{9a^6b^3c^2}\right)^{-2}$$

$$\frac{c^2}{16a^4}$$

$$\frac{(-4x^4y^3z^3)^3}{(2x^2yz^3)^5}$$

$$\frac{-2x^2y^4}{z^6}$$

$$\frac{81x^{12}y^{-4}z^8}{(3x^4y^3z^2)^3}$$

$$\frac{3z^2}{y^{13}}$$

$$\left(\frac{-3x^5y^3}{x^4y^2}\right)^3 \cdot \left(\frac{x^6y^2}{9x^4y}\right)^2$$

$$\frac{-x^7y^5}{3}$$

$$\left(\frac{36x^9y^8z^5}{3x^7y^3}\right)^2 \cdot \left(\frac{3x^5y^2}{x^6y^5z^2}\right)^{-3}$$

$$\frac{16x^7y^{19}z^{16}}{3}$$

$$\left(\frac{81x^{-5}y^6z^4}{27x^{-5}y^4z^3}\right)^3 \cdot \left(\frac{6x^{11}y^5z^4}{24x^8y^3z^4}\right)^{-2} \cdot (12y^4z)^{-2}$$

$$\frac{3z}{x^6y^6}$$