

NAME _____

Module 11 Simplifying Algebraic Expressions
with Polynomials

Lesson 1 Applying Rules of Exponents

**additional
practice**

Simplify.

- $4^2 \cdot 4^5$ $4^7 = 16,384$
- $3^{-4} \cdot 2^8$ $\frac{2^8}{3^4} = \frac{256}{81}$
- $3^{-2} \cdot 3^6$ $3^4 = 81$
- $(r^2s^4)(rs^3)$ r^3s^7
- $x^0y^0z^{-3}$ $\frac{1}{z^3}$
- y^3z^{-4} $\frac{y^3}{z^4}$
- $\frac{4^3}{4^5}$ $\frac{1}{4^2} = \frac{1}{16}$
- $\frac{7^8}{7^5}$ $7^3 = 343$
- $(xy)^3$ x^3y^3
- $(3a^4b^3)^2$ $9a^8b^6$
- $2a(ab^3c^4)^3$ $2a^4b^9c^{12}$
- $(2a)^3(b^3c^4)^2$ $8a^3b^6c^8$
- $(0.1a^4b^{-6})^2(3a^4b^{14})$ $0.03a^{12}b^2$
- $(3^2x^2y^4)^{-2}$ $\frac{1}{81x^4y^8}$
- $\left(\frac{y}{3}\right)^{-4}$ $\frac{81}{y^4}$
- $\frac{b^{-4}}{b^2}$ $\frac{1}{b^6}$
- $(-3m^2n^4)^3(mn^3)^2$ $-27m^8n^{18}$
- $\left(-\frac{2}{3}a\right)^3$ $-\frac{8}{27}a^3$
- $(0.2mn^4)^3$ $0.008m^3n^{12}$
- $\left(\frac{1}{2}a^3b^{-3}\right)\left(\frac{4}{5}a^{-2}b^8\right)$ $\frac{2}{5}ab^5$
- $\frac{(8a^3b^{-1})^2}{(8^4a^4b^5)^{-2}}$ $8^{10}a^{14}b^8$
- $\frac{(4^3a^3b^5c^9)^0}{4^2a^{-3}b^4}$ $\frac{a^3}{16b^4}$

