

Algebra 1 7.1

Multiply monomials using the properties of exponents

Simplify expressions using properties of exponents

monomial *number, var. or product*

constant  7 a 3x

linear

nonlinear

exponent

base

whiteboards

activity: 5 in a row

Monomial
examples:

$$\begin{array}{l} 3 \\ 6a \\ 2x^2 \\ n \end{array} \quad \frac{1}{4}x$$

nonexamples:

$$\begin{array}{l} n+3 \\ \frac{5}{x} \end{array}$$

- 1.
- 2.
- 3.
4. No variables in denominator

whiteboards

Guided Practice

1A. $-x + 5$ no, adding

1C. $\frac{xyz^2}{2}$ yes

1B. $23abcd^2$ yes

1D. $\frac{mp}{n}$ no, var in denom (÷)

KeyConcept Product of Powers

Words To multiply two powers that have the same base, add their exponents.

Symbols For any real number a and any integers m and p , $a^m \cdot a^p = a^{m+p}$.

Examples $b^3 \cdot b^5 = b^{3+5}$ or b^8

$$(b \cdot b \cdot b)(b \cdot b \cdot b \cdot b \cdot b) = b^8$$

$$3^2 = 3 \cdot 3 = 9$$

$$\underline{\underline{5^3 = 5 \cdot 5 \cdot 5 = 125}}$$

$g^4 \cdot g^6 = g^{4+6}$ or g^{10}

$$\begin{array}{c} x^2 \cdot x^3 \\ \downarrow \quad \downarrow \\ \boxed{x \cdot x \cdot x \cdot x \cdot x} = x^5 \end{array}$$

$$\begin{array}{c} g \cdot g \cdot g \cdot g \cdot g \cdot g \cdot g \cdot g \\ g^{10} \end{array}$$

activity: 5 in a row ← activity.

$$x^2 \cdot 3x^2 \cdot (y) y^4$$

$$3 \times \times \times \times y y y y y$$

$$\begin{array}{c} 3x^4y^5 \\ \uparrow \uparrow \uparrow \end{array}$$

KeyConcept Power of a Power

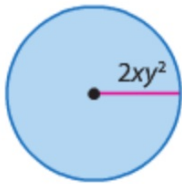
Words

Symbols

Examples

Example 4 Power of a Product

GEOMETRY Express the area of the circle as a monomial.



Do we know circle formulas?

Circle Song

(Are You Sleeping?)

A equals πR^2 Area, Area

C equals π times diameter, Circumference, Circumference!

Guided Practice

4A. Express the area of a square with sides of length $3xy^2$ as a monomial.