

Warm-Up:

Write using exponents.

1) $a \cdot a \cdot a \cdot a \cdot a \cdot a$

$$a^6$$

2) $x \cdot y \cdot x \cdot y \cdot x \cdot y \cdot x \cdot y$

$$x^4 y^4$$

Evaluate.

3) $5^4 = 625$

4) $(-2)^5 = -32$

Section 7-1: Multiplying Monomials

Any number, variable, or product of numbers and variables is a **monomial**.

Any monomial that is only a number is a **constant**.

Examples:

1) Underline each monomial in red. If it is also a constant, circle it in blue.

$17 - s$

$8f^2g$

$\frac{3}{4}$

$\frac{5}{t}$

$-27 + 5n$

72

$\frac{w}{2}$

$a^4b^3c^2d$

-3

$e^{14} + 1$

$$b^4 \cdot b^2 = (b \cdot b \cdot b \cdot b) \cdot (b \cdot b) = b^6$$

For any number a and integers m and n , $a^m \cdot a^n = a^{m+n}$

When multiplying with like bases, add exponents.

$$(g^5)^2 = g^5 \cdot g^5 = g^{10}$$

For any number a and integers m and n , $(a^m)^n = a^{m \cdot n}$

Power to a power:
Multiply exponents

$$(3z)^4 = 3z \cdot 3z \cdot 3z \cdot 3z = 3^4 z^4$$

For any numbers a and b and integer n , $(ab)^n = a^n \cdot b^n$

Quantity to a power:
Distribute the exponent

Examples:

Simplify each expression.

$$2) (r^4)(-12r^7) = -12r^{11}$$

$$3) (6cd^5)(5c^5d^2) = 30c^6d^7$$

$$4) [(v^3)^3]^2 = v^{18}$$

Examples:

5) Find the volume of a cube with side $5xyz$.

$$(5xyz)^3 = 5^3 x^3 y^3 z^3$$

$$125x^3 y^3 z^3$$

Homework: pg. 361-363 #14-36 even, 40-48 even, 52-55 all, 64

Section 7-1 Vocab