

## 5.5a Multiplying Monomials Notes Blank

Thursday, December 10, 2015 12:17 PM

## 5.5a Multiplying Monomials and Polynomials

**Math 9**

Name \_\_\_\_\_

Steps to multiplying by a constant:

Use the distributive property, multiply the constant by everything in the brackets.

Example:

$$\begin{array}{lll} \text{a) } 3(-2m+4) & \text{b) } -2(-n^2+2n-1) & \text{c) } -6(2w^2-w+5) \\ 3(-2m)+3(4) & -2(-n^2)-2(2n)-2(-1) & = -12w^2+6w-30 \\ = -6m+12 & = 2n^2-4n+2 & \end{array}$$

**Recall:**

Simplify in power form:

$$\begin{array}{lll} \text{a) } 3^2 \times 3^5 & \text{b) } (-7)^4(-7) & \text{c) } y^6 \times y^3 \\ = 3^{2+5} = 3^7 & (-7)^5 & y^9 \end{array}$$

What is the shortcut for multiplying powers with the same base?

Add the exponents.

Ex1 - Multiply  $(6x^2)(-3x)$

$$\begin{aligned} & (6)(-3)(x^2)(x) \\ & = -18x^3 \end{aligned}$$

What are the steps to multiplying monomials?

- ① multiply coefficients
- ② Add exponents of like variables

Ex2 - Multiply

$$\begin{aligned} & \text{a) } (3a)(4b^3) \\ & = 12ab^3 \end{aligned}$$

$$\begin{aligned} & \text{b) } -x^2(2xy) \\ & = -2x^3y \end{aligned}$$

$$\begin{aligned} & \text{c) } -2y^3(4y^2) \\ & = -8y^5 \end{aligned}$$

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Ex3 – Simplify

a)  $(2x^2y)(-3xy)$

$$= -6x^3y^2$$

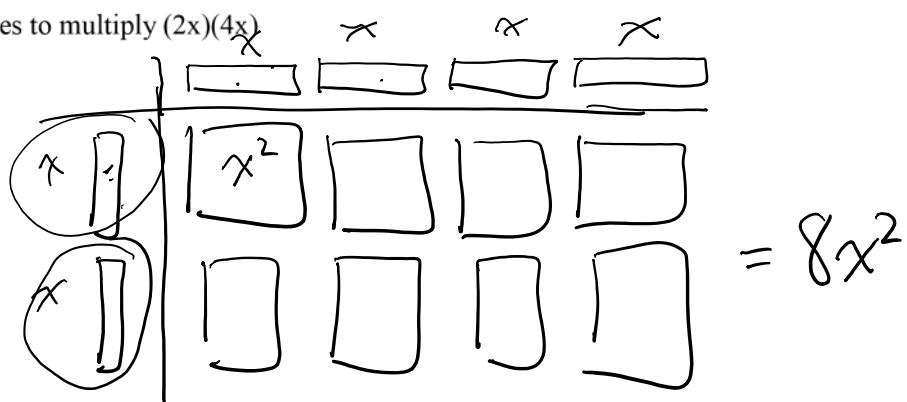
b)  $(x^3)(-3xy^3)(4y)$

$$= -12x^4y^4$$

c)  $(-2a^3bc^2)(-5ac^4y^2)$

$$= 10a^4bc^6y^2$$

Using Algebra Tiles to multiply  $(2x)(4x)$



### Multiplying a Polynomial by a Monomial

Use the distributive property like multiplying by a constant!

**Example 1:**  
a)  $3x(5x - 4)$

$$\begin{aligned} & 3x(5x) + 3x(-4) \\ & = 15x^2 - 12x \end{aligned}$$

b)  $-6x^2(-3 + x + 2x^2)$   

$$(-6x^2)(-3) - 6x^2(x) - 6x^2(2x^2)$$
  

$$-18x^2 - 6x^3 - 12x^4$$

c)  $3m^2(mn - n^2)$

$$3m^3n - 3m^2n^2$$

d)  $2(3x^2 - 4x + 5) - 5x(x - 3)$

$$\begin{aligned} & 2(3x^2) + 2(-4x) + 2(5) - 5x(x) - 5x(-3) \\ & 6x^2 - 8x + 10 - 5x^2 + 15x \\ & \boxed{x^2 + 7x + 10} \end{aligned}$$

HW: 5.5a worksheet

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