

5.5a Multiplying Monomials Notes Blank

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5.5a Multiplying Monomials and Polynomials

Math 9

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Steps to multiplying by a constant:

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

Example 1:

a) $3(-2m + 4)$

$$3(-2m) + 3(4) \\ = -6m + 12$$

b) $-2(-n^2 + 2n - 1)$

$$-2(-n^2) - 2(2n) - 2(-1) \\ = 2n^2 - 4n + 2$$

c) $-6(2w^2 - w + 5)$

$$= -12w^2 + 6w - 30$$

Recall:

Simplify in power form:

a) $3^2 \times 3^5$

$$= 3^{2+5} = 3^7$$

b) $(-7)^4(-7)$

$$(-7)^5$$

c) $y^6 \times y^3$

$$y^9$$

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

Add the exponents.

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

$$(6)(-3)(x^2)(x) \\ = -18x^3$$

What are the steps to multiplying monomials?

① multiply coefficients

② Add exponents of like variables

Ex2 - Multiply

a) $(3a)(4b^3)$

$$= 12ab^3$$

b) $-x^2(2xy)$

$$-2x^3y$$

c) $-2y^3(4y^2)$

$$-8y^5$$

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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) $3x(5x - 4)$

$$3x(5x) + 3x(-4)$$

$$= 15x^2 - 12x$$

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

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

$$6x^2 - 8x + 10 - 5x^2 + 15x$$

$$x^2 + 7x + 10$$

HW: 5.5a worksheet

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