

## Exponent Rules Review

$$a^m \times a^n = a^{m+n}$$

$$a^m \div a^n = a^{m-n}$$

$$(a^m)^n = a^{m \times n}$$

$$(ab)^n = a^n b^n$$

$$\left(\frac{a}{b}\right)^m = \frac{a^m}{b^m}$$

$$a^0 = 1$$

$$a^{-m} = \frac{1}{a^m}$$

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## Collecting "Like" Terms Review

Only terms that have the EXACT same variables after the coefficient can be grouped or collected together.

"Like" Terms      5a and 8a  
6xy and 3xy and 7yx  
2x<sup>2</sup>y<sup>3</sup> and 3x<sup>2</sup>y<sup>3</sup>

"Unlike" Terms      5a and 8a<sup>2</sup>  
6x and 3x<sup>2</sup>  
2x<sup>3</sup>y<sup>2</sup> and 3x<sup>2</sup>y<sup>3</sup>

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## Simplify by collecting Like Terms

(a)  $5a + 9b - 4a - 12b$

(b)  $4x^2 - 7 + 6x - 9 + 2x^2 + 8x$

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## Distributive Property

Expand (multiply) the following

$$2(x + 5) =$$

$$3x(2x + 4) =$$

$$5x^2(-3x+1)$$

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## Bringing it all together

Expand and Simplify

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

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Expand and Simplify

$$2x(x-1) - 3x(x-2)$$

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Expand and Simplify

$$-3x^2(x^2 + 6x) + 4x(x^2 - 7x)$$

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Expand and Simplify

$$(-5x^3 + x^2 + 2x) + (8x^3 - x^2 - 9x)$$

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Expand and Simplify

$$(-3x^3 + 2x^2 + 5x - 8) - (-5x^3 - 2x^2 - 6x + 3)$$

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Are the following functions EQUIVALENT?

$$f(x) = 3(x - 4)(2x + 5)$$

$$g(x) = 6(x^2 + 0.5x + 60)$$

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Homework

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Challenge 15

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