PRINCIPLES - LESSON 2D
MULTIPLYING & DIVIDING EXPRESSIONS

Exponents DO NOT CHANGE
when combining like terms

ex1) $x + x = 2x$

ex2) $3n + 5n = 8n$

ex3) $9b^3 - 15b^3 = -6b^3$

ex4) $4a + 3b$ Unlike terms. Cannot combine

Exponents DO CHANGE
when multiplying variables by variables

ex5) $x \cdot x = x^2$

ex6) $3n \cdot 5n = 15n^2$

ex7) $4a \cdot 3b = 12ab$

We need like terms to add/subtract variables, but NOT to multiply/divide them.

MULTIPLYING & DIVIDING ALGEBRAIC EXPRESSIONS

Simplify.

ex8) $y(8y + 16)$

$= 8y^2 + 16y$

ex9) $2x(3x - 1)$

$= 6x^2 - 2x$

MULTIPLYING & DIVIDING ALGEBRAIC EXPRESSIONS

Simplify.

ex10) $5x(x-4)-5x(2x-3)$

$= 5x^2 - 20x - 10x^2 + 15x$

$= -5x^2 - 5x$

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ex11) $2xy(3x+2y)-1xy^2$

$= 6x^2y + 4xy^2 - 1xy^2$

$= 6x^2y + 3xy^2$

MULTIPLYING & DIVIDING ALGEBRAIC EXPRESSIONS

When dividing two algebraic expressions, we can break the fraction into smaller parts.

TWO WAYS TO DO THE SAME PROBLEM

ex12) Use the order of operations.

$$\frac{6+10}{2} = \frac{16}{2}$$

$$= 8$$

ex13) Break into smaller fractions.

$$\frac{6+10}{2} = \frac{6}{2} + \frac{10}{2}$$

$$= 3 + 5$$

$$= 8$$

MULTIPLYING & DIVIDING ALGEBRAIC EXPRESSIONS

Simplify.

ex14) $\dfrac{15x^2 + 10z}{5}$

$= \dfrac{15x^2}{5} + \dfrac{10z}{5}$

$= 3x^2 + 2z$

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ex15) $\dfrac{2d^2 + 18d - 10}{2}$

$= \dfrac{2d^2}{2} + \dfrac{18d}{2} - \dfrac{10}{2}$

$= d^2 + 9d - 5$