U2D7_T_Distributive Property

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U2D7_T_Distributive ...

U2D7

The Distributive Property

When we multiply m by (x+y), we need to distribute the multiplication of the m to the x and the y.

This is called the Distributive Property. (Some call it Ross Arrows or the Rainbow.)

We need the Distributive Property when there are variables in the expression which will not allow us to simplify following BEDMAS.

Example 1: Expand. (i.e., Multiply it out.)

a) $3(x + 2)$

$= 3x + 3(2)$

$= 3x + 6$

b) $-5(n - 5)$

$= -5n - 5(-5)$

$= -5n + 25$

c) $(-r + 2)(-5)$ OR $-5(-r+2)$

$= 5r - 10$

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

$= 3x^2 + 12x + 6$

e) $x(x - 3)$

$= x^{1+1} - 3x$

$= x^2 - 3x$

f) $-2y^2(y^2 - 5)$

$= -2y^{2+2} + 10y^2$

$= -2y^4 + 10y^2$

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Example 2: Expand and Simplify.
(i.e., Multiply it out then collect like terms.)

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

$= 3x + 6 + 6x - 12$

$= 9x - 6$

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

$= x^2 + 2x - 3x^2 - 12$

$= -2x^2 + 2x - 12$

c) $2x^2[x - 3(x+4)]$

$= 2x^2[x - 3x - 12]$

$= 2x^2(-2x - 12)$

$= -4x^3 - 24x^2$

* Follow BEDMAS and simplify as much as you can inside the brackets before you apply the distributive property.

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