

5.5b Multiplying Binomials

Monday, December 14, 2015 12:27 PM

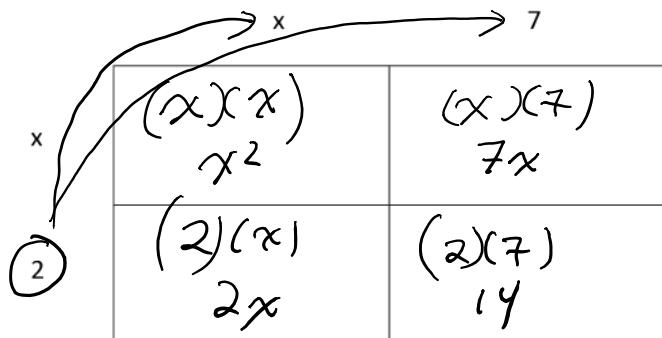
5.5b Multiplying Binomials

Math 9 Notes

Name _____

Recall, a binomial is a polynomial with 2 terms.

Using Algebra tiles a product of two binomials can be illustrated



$$\text{Area} = \text{length} \times \text{width}$$

$$\text{length} = x + 7$$

$$\text{width} = x + 2$$

We can find the area of each smaller rectangle and add them together,

$$\begin{aligned} & x^2 + 7x + 2x + 14 \\ &= x^2 + 9x + 14 \end{aligned}$$

$$\begin{aligned} \text{Therefore, } (x+7)(x+2) &= x^2 + 7x + 2x + 14 \\ &= x^2 + 9x + 14 \end{aligned}$$

We can expand $(x+7)(x+2)$ using the distributive property.

$$\begin{aligned} \text{Therefore } (x+7)(x+2) &= x(x+7) + 7(x+7) \\ &= x^2 + 2x + 7x + 14 \\ &= x^2 + 9x + 14 \end{aligned}$$

A way to remember this is called F O I L.

First, **O**utside, **I**nside, **L**ast

Examples. Expand and simplify

$$\begin{aligned} 1) (x+8)(x+3) \\ &= x^2 + 3x + 8x + 24 \\ &= x^2 + 11x + 24 \end{aligned}$$

$$\begin{aligned} 2) (3a-2)(a+4) \\ &= 3a^2 + 12a - 2a - 8 \\ &= 3a^2 + 10a - 8 \end{aligned}$$

5.5b Multiplying Binomials

Math 9 Notes

Name _____

Hint

$$3) (x - 7)(x - 3)$$

$$= x^2 - 3x - 7x + 21$$

$$= x^2 - 10x + 21$$

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

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

$$= 30 - 15x^2 + 10x - 5x^3$$

$$= -5x^3 - 15x^2 + 10x + 30$$

$$5) (3ab + c)(-2ab + 3c)$$

$$= -6a^2b^2 + \cancel{9abc} - \cancel{2abc} + 3c^2$$

$$= -6a^2b^2 + 7abc + 3c^2$$

Try this.... How do you think you would solve $(x + 3)^2$? *

then Assignment
5.5b worksheet

$$(x+3)(\overset{\leftarrow}{x+3})$$

$$= x^2 + 6x + 9$$

5.5b Multiplying Binomials

Math 9 Notes

Name _____