

Why does it work?

**Alex and Morgan were asked to multiply  $(3x + 1)(2x + 5)$**

Alex's "distributive property" way

Morgan's "FOIL" way

I first distributed the  $(3x + 1)$ .

Then I distributed again for each of the terms being multiplied.

Next I used the order of operations to multiply.

Lastly, I combined the like terms to get the answer.

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



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



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



$$6x^2 + 2x + 15x + 5$$



$$6x^2 + 17x + 5$$



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



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



$$6x^2 + 2x + 15x + 5$$



$$6x^2 + 17x + 5$$



To use FOIL, I wrote down the multiplication of the First terms from each binomial, the two Outside terms, the two Inside terms, and the two Last terms in each binomial, and added each product together.

Next I used the order of operations to multiply.

Lastly, I combined the like terms to get the answer.

- \* How did Alex solve the equation?
- \* Why did Morgan multiply all the terms as a first step?
- \* What are some similarities and differences between Alex's and Morgan's ways?
- \* Even though Alex and Morgan did different first steps, why did they both get the same answer?