Lesson 1.1: Binomial x Binomial (a+b)(c+d)

Specific Outcome: 4.1 – Model multiplication of two given binomials, concretely or pictorially, and record process symbolically. 4.2 – Relate multiplication of 2 binomial expressions to an area model. 4.3 – Explain, using examples, the relationship between multiplication of binomials and multiplication of two-digit numbers. 4.5 – Multiply two polynomials symbolically, and combine like terms. 4.7 – Identify and explain errors in a solution for a polynomial multiplication.

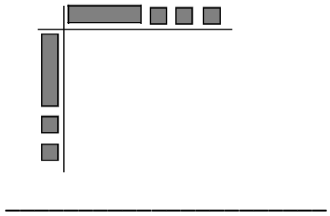
Expand:

Factors:

Product:

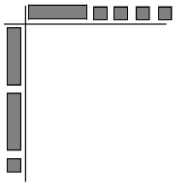
A. USING *ALGEBRA TILES*

Expand**: (x + 2)(x + 3)**

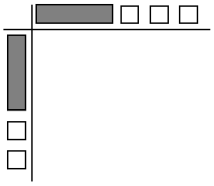


Practice: Complete the algebra tiles diagrams and determine the binomials products.

a)



b)



B. USING AN *AREA MODEL*

The algebra tile diagram used to model **(x + 2)(x + 3)** can be modified into an ***area model***, which shows that the product of 2 binomials is equivalent to 4 monomial products.

Algebra Tiles

Area Model

Practice: Use an area model like the one above to determine the product of the two binomials.

a) $(5x - 6)(2x + 1)$ b) $(3a + 4)(2a + 3)$ c) $(4x - 5)(6x - 2)$

NOTE: An area model can be used to show that the multiplication of 2 two-digit numbers can be performed as four separate products.

Use an area model to expand: **32 x 34**

HOMEWORK: TEXT P. 167 – 12ceg (use area models for each)

C. USING THE *DISTRIBUTIVE PROPERTY*

- Distributive Property: $(\boldsymbol{a}+\boldsymbol{b})(\boldsymbol{c}+\boldsymbol{d})\ =$

Expand using Dist. Prop: $(\boldsymbol{x}+\boldsymbol{4})(\boldsymbol{2x}+\boldsymbol{3})$ **=**

Practice: Use the distributive property to expand and simplify the following expressions.

a) $(2a+5)(a-6)$ b) $(3x-4)(3x-7)$ c) $(-2y+3)(4y-1)$

D. USING THE *FOIL METHOD*

In the FOIL method, each letter stands for a product:

Expand by FOILing: **(x + 4)(x + 7)** =

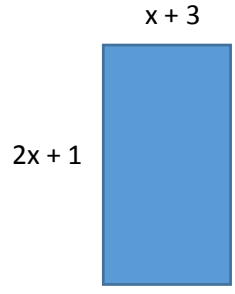
Practice: Use FOIL to determine each products.

	F	O	I	L	TRINOMIAL
a. (x + 6)(x + 4)					=
b. (2x – 7)(x + 5)					=
c. (3x – 2)(2x – 6)					**=**
d. (4x + 7)(3x – 5)					=
e. (2x + y)(x – 3y)					=

Problem Solving:

1. A rectangle has length *(2a + 5)* cm and width *(3a – 4)* cm. Determine the area of the rectangle (in cm^2) .

2. The area of the rectangle shown can be written in the form $ax^2 + bx + c$.
   Write the value of *a* in first box.
   Write the value of *b* in second box.
   Write the value of *c* in third box.



*3. $(2x+3)(4x-5)$ can be expanded and simplified into the form of ax^2+bx+c. The value of $a+b$ is _____.

HOMEWORK (use Dist. Prop. or FOIL method): P. 167 – 10, 12(dfh), 13, 18
P. 177 – 10