**Multiplying Polynomials**

**Vocabulary:**

Polynomial: A mathematical expression containing one or more terms.

Monomial: A mathematical expression with \_\_\_\_\_\_\_\_ term.

Binomial: A mathematical expression with \_\_\_\_\_\_\_\_ terms.

Trinomial: A mathematical expression with \_\_\_\_\_\_\_\_ terms.

Use an area model to show the product of two binomials. Then combine like terms to form a trinomial. You may, if you choose, use algebra tiles to assist you.



1. (*x* + 2)(*x* + 4)



1. (*x* + 7)(2*x* + 6)
2. (3*x* + 2)(2*x* + 5)

Continue to use area models, even when some terms are negative. (At this point you may not want to continue using algebra tiles.)



1. (*x* + 3)(*x* – 5)



1. (*x* – 9)(2*x* – 8)



1. (3*x* + 1)(­–2*x* +3)

Here is the product of a binomial and a trinomial

1. (*x* – 9)(*x* – 2*y* + 4)

Now try the method of applying the distributive property twice:

1. $\left(x-5\right)\left(x+7\right)=\left(x-5\right)x+\left(x-5\right)7=x^{2}$ – \_\_\_\_ *x*  + \_\_\_\_ *x* – \_\_\_\_

= $x^{2}$ + \_\_\_\_ *x* – \_\_\_\_

1. $\left(x+4\right)\left(3x-10\right)= $( ) 3*x* – ( )10 = \_\_\_\_\_ + \_\_\_\_\_ – \_\_\_\_\_\_ – \_\_\_\_\_

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You may check your work for problems 8 & 9 by drawing an area model if you like.

Expand these products by any method you like. Show your work.

1. 6*x* (*x –* 5)
2. *x* ($x^{2}$ + 4*x* ­– 15)
3. (5*x* – 1)(2*x* – 3)
4. (*x –* 4)(*x*  + 4)
5. $(x+3)^{2}$
6. Which of problems 10–14 shows a monomial multiplied by a trinomial?
7. Which of the problems 10–14 has a binomial product?
8. In which of the problems 10–14 are the two binomial factors the same?