

Algebra I

Lesson 8-7

- I can multiply two binomials by using the FOIL method.
- I can multiply two polynomials by using the Distributive Property.

$$24 \times 36$$

Step 1
multiply by
the ones

$$\begin{array}{r} 24 \\ \times 36 \\ \hline 144 \end{array}$$

Step 2
multiply by
the tens

$$\begin{array}{r} 24 \\ \times 36 \\ \hline 144 \\ 720 \end{array}$$

Step 3
Add place
values

$$\begin{array}{r} 24 \\ \times 36 \\ \hline 144 \\ 720 \\ \hline 864 \end{array}$$

To multiply two binomials, apply the Distributive Property twice as you do when multiplying two-digit numbers.

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

$$\begin{array}{r} (x) \quad x+3 \\ \quad \quad x+2 \\ \hline \quad \quad 2x+6 \\ +) x^2+3x \\ \hline x^2+5x+6 \end{array}$$

$$\begin{array}{l} (x+3)(x+2) \\ x^2+2x+3x+6 \\ x^2+5x+6 \end{array}$$

Model: $(x + 3)(x - 2)$

$$\begin{array}{r} x+3 \\ x^2+x-6 \end{array} \quad \begin{array}{c} x-2 \\ x \quad -1 \quad -1 \\ \hline x \quad x^2 \quad -x \quad -x \\ \hline +1 \quad x \quad -1 \quad -1 \\ \hline +1 \quad x \quad -1 \quad -1 \\ \hline +1 \quad x \quad -1 \quad -1 \end{array}$$

A shortcut of the Distributive Property, called the FOIL method can be used to multiply two binomials.

$$(x - 5)(x + 7)$$

$$x^2 + 7x - 5x - 35$$

$$x^2 + 2x - 35$$

$$(2y + 3)(6y - 7)$$

$$12y^2 - 14y + 18y - 21$$

$$12y^2 + 4y - 21$$

The area A of a trapezoid is one-half the height h times the sum of the bases, b_1 and b_2 . Write an expression for the area of the trapezoid below.

$$A = \frac{1}{2}h(b_1 + b_2)$$

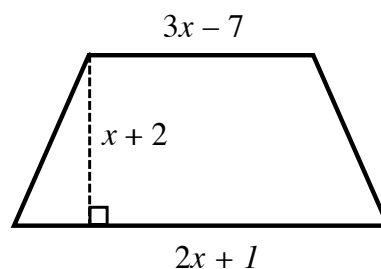
$$A = \frac{1}{2}(x+2)((3x-7)+(2x+1))$$

$$= \frac{1}{2}(x+2)(5x-6)$$

$$= \frac{1}{2}(5x^2 - 6x + 10x - 12)$$

$$= \frac{1}{2}(5x^2 + 4x - 12)$$

$$A = \frac{5}{2}x^2 + 2x - 6 \text{ units}^2$$



$$(4x + 9)(2x^2 - 5x + 3)$$

$$8x^3 - 20x^2 + 12x + 18x^2 - 45x + 27$$

$$8x^3 - 2x^2 - 33x + 27$$

$$\begin{array}{r} 2x^2 - 5x + 3 \\ (x) \quad \underline{4x + 9} \\ \quad 18x^2 - 45x + 27 \\ (+) \quad \underline{8x^3 - 20x^2 + 12x} \\ \quad 8x^3 - 2x^2 - 33x + 27 \end{array}$$

$$(y^2 - 2y + 5)(6y^2 - 3y + 1)$$

$$6y^4 - \underline{3y^3} + \underline{y^2} - \underline{12y^3} + \underline{6y^2} - \underline{2y} + \underline{30y^2} - \underline{15y} + 5$$

$$6y^4 - 15y^3 + 37y^2 - 17y + 5$$

Assignment

Pgs. 455 #14-24 even; 32-38 even; 39-44;
Quiz Tuesday over Lessons 8-5 through 8-7