Polynomials – Working with Algebra Tiles

Today we will:
- Demonstrate an understanding of the multiplication of polynomial expressions (monomials, binomials, and trinomials) concretely, pictorially, and symbolically.

Review – Multiplying Integers:
- Multiplying is just repeated addition.
- \(5+5+5+5+5=7\times5=35\)
- \(2+2+2=3\times2=6\)

We can show this with algebra tiles:

\[
2(2x+1) = 4x + 2
\]

Using Algebra Tiles with Polynomials:
- We will be modeling polynomials of the form \(ax^2+bx+c\)

- When using these shapes we need to think about area. What would be the area of each shape?
- I am using the \(\text{white}\) pieces to represent positives. I am using the \(\text{red}\) pieces to represent negatives
Practice: Use the algebra tiles to represent:

2

-3x^2

-5x+3

2x^2+3x-4

Multiplying Monomials

Practice: Show the following multiplication using algebra tiles.

2(x+2)

2(x+3) + 3(2x-1)

= 8x+3
1.5 - Algebra Tiles

The first polynomial multiplies by the entire 2nd polynomial.

\[(2x+3)(x+4) = 2x^2 + 11x + 12\]

\[(3x+2)(2x+3) = 6x^2 + 13x + 6\]

\[(2x+3)^2 = 4x^2 + 12x + 9\]

How can we solve these without the tiles?