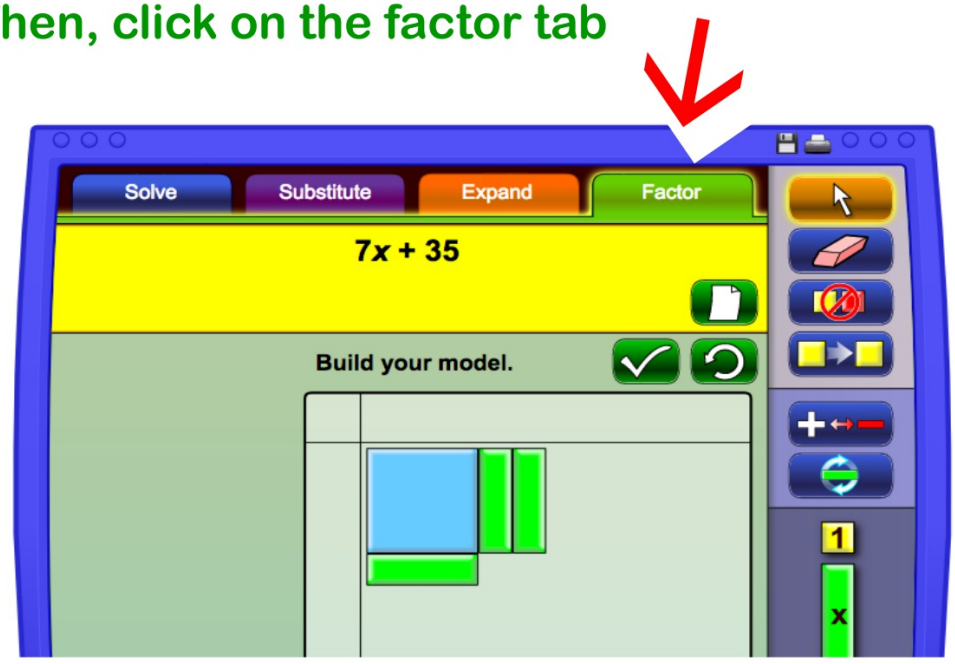
- Grab a laptop!
- Google: NCTM Illuminations algebra tiles

  → It's the first or second link!
- Then, click on the factor tab



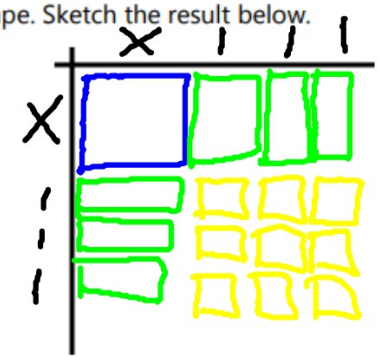
Completing the Square!

Name: _____

The Road from Standard to Vertex

1) Consider the Quadratic Equation: $y = x^2 + 6x + 9$. It is in Standard form.

Use the digital tiles to represent this quadratic. Try to arrange them so they fit in a perfect square shape. Sketch the result below.



What is the length of your square?

$x+3$

What is the width of your square?

$x+3$

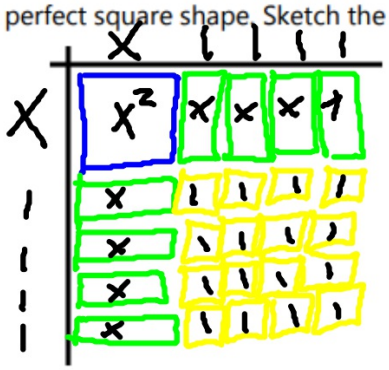
Rewrite the quadratic equation as a product of the length and width.

$y = (x+3)(x+3) = (x+3)^2$

It is now in vertex form. What transformation does this tell you?

Shift left by 3 Vertex $(-3, 0)$

2) Use the digital tiles to represent the quadratic $y = x^2 + 8x + 16$. Try to arrange them so they fit in a perfect square shape. Sketch the result below.



What is the length of your square?

$x+4$

What is the width of your square?

$x+4$

Rewrite the quadratic equation as a product of the length and width.

$y = (x+4)^2$

What transformation does this tell you?

Vertex $(-4, 0)$ Shift left 4