

**2.3.1** How can I write it in graphing form?

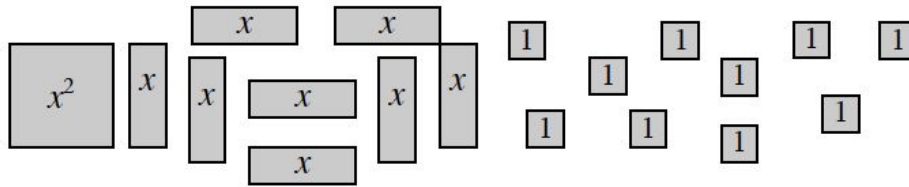
Completing the Square



**#131** With your team, decide on a strategy to find the vertex of the parabola  $y = x^2 - 2x - 15$ . Then write the equation of the parabola in graphing form.

Blank space for student response to problem #131.

**#132 COMPLETING THE SQUARE**



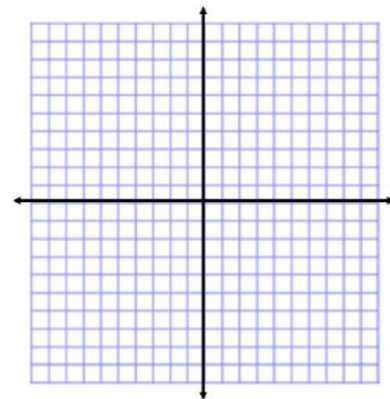
a. Use algebra tiles or a rectangular area model to complete the square and rewrite the equation  $y = x^2 + 8x + 10$  in graphing form.

Area Model

Algebra

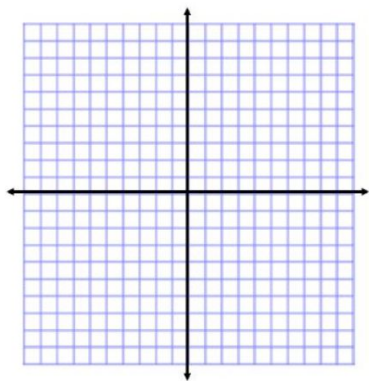
b. Where is the vertex of the parabola?

c. Sketch a graph of the parabola.  
**scale by ones**



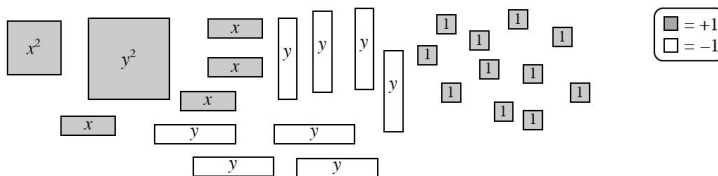
Blank space for student response to problem b and c.

**#133** Complete the square to write  $y = x^2 + 4x + 9$  in graphing form. Use algebra tiles or an area model to figure out how to make this expression into a square. Write the equation in graphing form, name the vertex, and sketch the graph.

<u>Area Model</u>	<u>Algebra</u>	<u>Graph (scale by ones)</u>
<p>Equation:</p> <p>Vertex:</p>		

**\$134**

$$x^2 + y^2 + 4x - 8y + 11 = 0$$



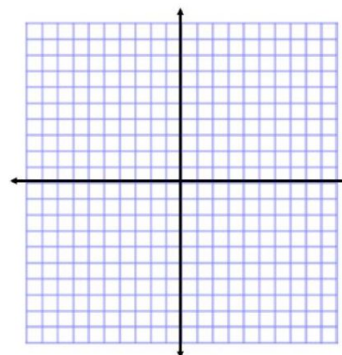
a. With your team, figure out how to arrange the tiles to form two squares.

<u>Area Model</u>	<u>Algebra</u>

b. How many unit tiles are needed to complete the two squares?

c. Write the equation in graphing form and sketch a graph. **Scale by ones**

Equation:



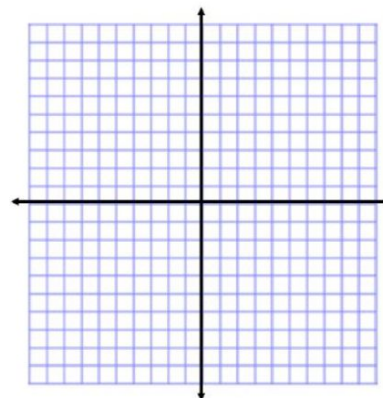
**#134 Continued**

d. Complete the square to rewrite  $x^2 + y^2 - 4x + 6y - 3 = 0$  in graphing form and sketch a graph.

Area Model

Algebra

Graph (scale by ones)



Equation:

**#135** Write each equation in graphing form, then state the vertex of the parabola or the center and radius of the circle.

a.  $y = x^2 + 6x + 7$

b.  $f(x) = 3x^2 + 12x + 11$

Vertex:

Vertex:

**#135 Continued** Write each equation in graphing form, then state the vertex of the parabola or the center and radius of the circle.

c.  $x^2 + y^2 + 2x - 4y = 4$

Center:

Radius:

d.  $f(x) = x^2 + 7x + 2$

Vertex:

e.  $y = 2x^2 + 16x$

Vertex:

f.  $x^2 + y^2 + y + 2 = 8$

Center:

Radius: