Notebooks 2.3.3

1. Write the general form of each:

A. Standard form of a quadratic

B. Vertex form of a quadratic

2. Write each quadratic function in vertex form:

A. $f(x) = x^2 + 8x + 20$

B. $g(x) = x^2 - 12x + 30$

3. What is the process used to create the vertex form for the quadratics in question 2?

Why do you think it is called that?

4. Which of the following expressions are perfect square quadratics?

a. $x^2 + 4x + 4$ b. $x^2 - 9$

c. $(x - 5)^2$ d. $x^2 - 9x + 20.25$

e. $x^2 + 5x + 25$ f. $(x + 14)^2 - 9$

g. $4x^2 + 4x + 1$ h. $x^2 - 8x + 9$

5. Draw an area model for each quadratic expression below.

a. $(x + 5)^2$

b. $(x + 2)^2 - 3$

c. $x^2 + 6x + 12$

d. $2 (x+1)^2$

12. Jenny's last quadratic function to graph is $f(x) = 2x^2 + 12x + 13$. She draws the following diagram and says, "I'm not sure how this helps me. I don't see how to make this a square." Help Jenny to complete the square and find the vertex of the parabola using either the diagram or the equation.