Warm Up 2.3.2

Create tables of values for the quadratics
Use integer x-values from -2 to 3.
Look closely at the y- values.
What do you notice?

Exactly what does the coeffiencet of x^2 do?

$f(x) = x^2$

$g(x) = 3x^2$

$h(x) = .25x^2$

Explain what each part of the *vertex form* of a quadratic function connects with on the parabola of the quadratic.

$$f(x) = a(x - h)^2 + k$$

Optima is sharing her work on perfect square quadratics with Omar. Help explain each of the following.

What is another form for each of the expressions below?

a. $(x+6)^2$ **b.** $(x - 5)^2$

Draw a square and label it to illustrate how the expressions connect to the visual model of area.

Optima knows how any perfect square will look in both factored and expanded form. Omar is not sure yet how this work.

Explain how to complete the following expressions so they are perfect squares. (Draw the visual area model if needed)

a. $x^2 + 10x + \_\_\_\_$

b. $x^2 - 8x + \_\_\_\_$

c. $x^2 + \_\_\_ + 36$

d. $x^2 - \_\_\_ + 81$

e. $x^2 + 9x + \_\_\_\_$

f. $x^2 - 5x + \_\_\_\_$

So, Omar is with it now and sees some great connections between the values in perfect square quadratics.

Explain the connects between the the values h, b and c in the following:

$$(x + h)^2 = x^2 + bx + c$$

What advantage would there be to writing a quadratic as a perfect square in the form $(x+h)^2$?