Identifying Graph Features Using Vertex Form

You should notice that the vertex form of the quadratic has three numbers that are used to transform the parent function <pause>. The numbers are in the position a, h, and k. The a-value, which is the same as the a-value in standard form, identifies the vertical stretch or compression of the parabola, and whether the parabola opens upward or downward. If a is positive, the graph opens up, and if a is negative, the graph opens down. When the absolute value of a is greater than one, the parent graph will stretch taller by a factor of a, and if the absolute value of a is between zero and one, the graph will compress shorter.

The values of h and k determine the x and y coordinate of the vertex which is the top or bottom of the parabola. Notice that in this form, the opposite of h is indicated in the function, so we will use the opposite of this number when identifying the vertex.