Transformation Cheat Sheet

Vertex Form

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

a - Vertical stretch/compression
Reflection across x axis

- If $a > 1$ the graph is stretched vertically
- If $0 < a < 1$ the graph is compressed vertically
- If a is negative, the function is reflected over the x-axis.

b - Horizontal stretch/compression
Reflection across y axis ☆

- If $b > 1$ compressed horizontally
- If $0 < b < 1$ the graph is stretched horizontally
- If b is negative, the function is reflected over the y-axis

h - Horizontal translation ☆

- If h is positive, the graph is shifted left.
- If h is negative, the graph is shifted right.

k - Vertical Translation

- If k is positive, the graph is shifted right.
- If k is negative, the graph is shifted left.

☆ - Indicates backwards from what you think.