Algebra 2
Unit: Exponential and Logarithmic Functions
Section: Graphing Exponential Functions and Domain and Range

**Example: Transformations of Exponential Functions**

Problem

Graph f of x is equal to two to the quantity two times x minus two power plus two.

Solution

Rewrite the function as f of x is equal to two to the two times the quantity x minus one power plus two.

In this case c equals two, h equals one, and k equals two. The graph is stretched vertically by a factor of one half, translates one unit to the right, and two units up.
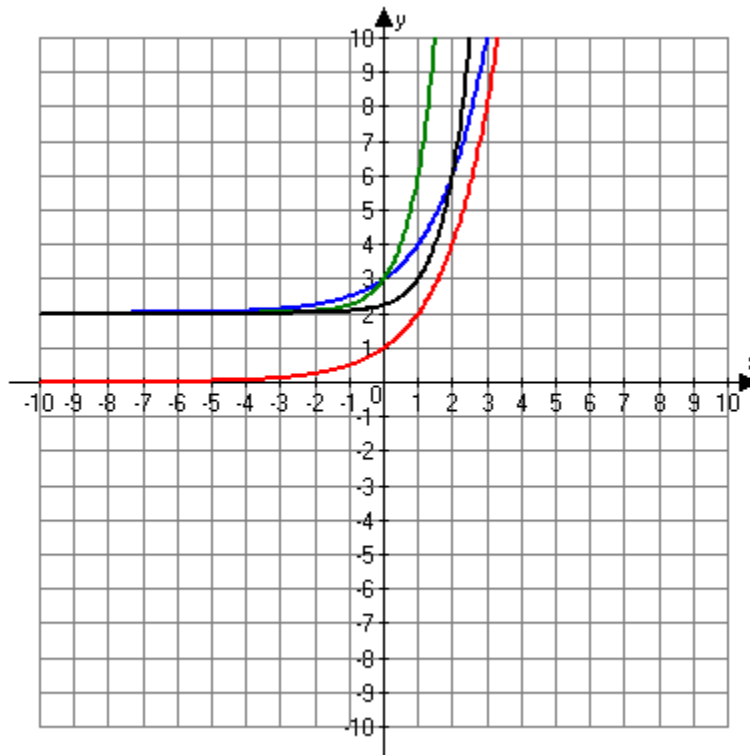
The red graph is of f of x is equal to two to the x power.

The blue graph is of f of x is equal to two to the x power plus two. It is the last graph shifted up 2 units.

The green graph is of f of x is equal to two to the two times x power plus two. It is steeper than the last graph, stretched by a value of one-half.

The black graph is the final equation of f of x is equal to two to the quantity two times x minus two power plus two. It is shifted one unit to the right.