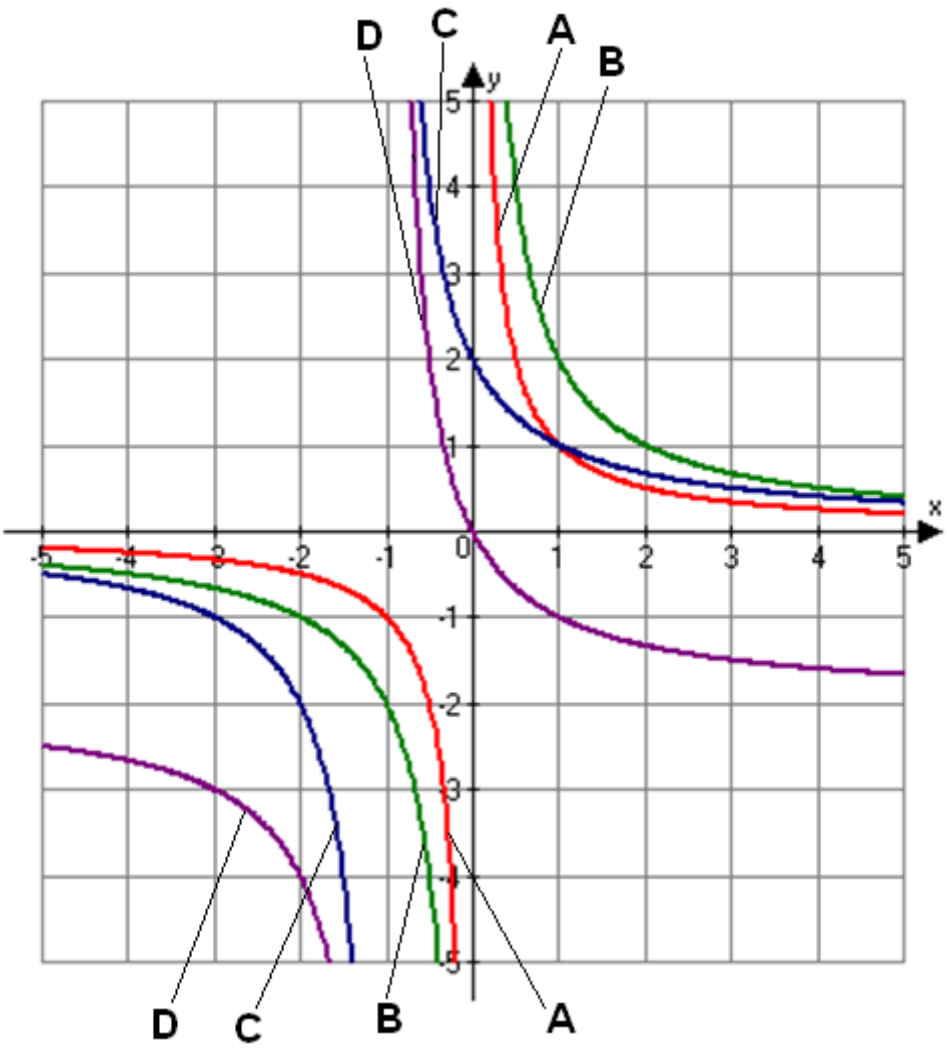
Algebra 2
Unit: Rational Functions
Section: Graphing Rational Functions and Domain and Range

Example: Transformations of Rational Functions

Problem

Graph the function y equals two divided by the quantity x plus one minus two.

Solution



The red graph (labeled A) is the parent function y is equal to one divided by x. It goes through the points (negative 2, negative one-half), (negative 1, negative 1), (1, 1), (2, one-half), and it is not defined for x equals 0 or y equals 0.

The green graph (labeled B) is y is equal to two divided by x. a is equal to two so there is a vertical stretch by a factor of absolute value of two. It goes through the points (negative 2, negative 1), (negative 1, negative 2), (1, 2), (1, 1), and it is not defined for x equals 0 or y equals 0.

The blue graph (labeled C) is y is equal to two divided by the quantity x plus one. h is equal to negative one so the graph moves one unit to the left. It goes through the points (negative 3, negative 1), (negative 2, negative 2), (0, 2), (1, 1), and it is not defined for x equals negative 1 or y equals 0.

Now we can graph the final equation (labeled D) y equal to two divided by the quantity x plus one minus two. K is equal to negative two so the graph moves two units down. It goes through the points (negative 3, negative 3), (negative 2, negative 4), (0, 0), (1, negative 1), and it is not defined for x equals negative 1 or y equals negative 2.