**Holes in the Graph**

When graphing rational functions, there is one very important thing to look for in the function. That is to check if there are shared roots in the numerator and the denominator. If there are similar roots, you remove the roots from your function since something divided by itself is equal to one. You then can proceed to graph the much simpler rational function you now have.

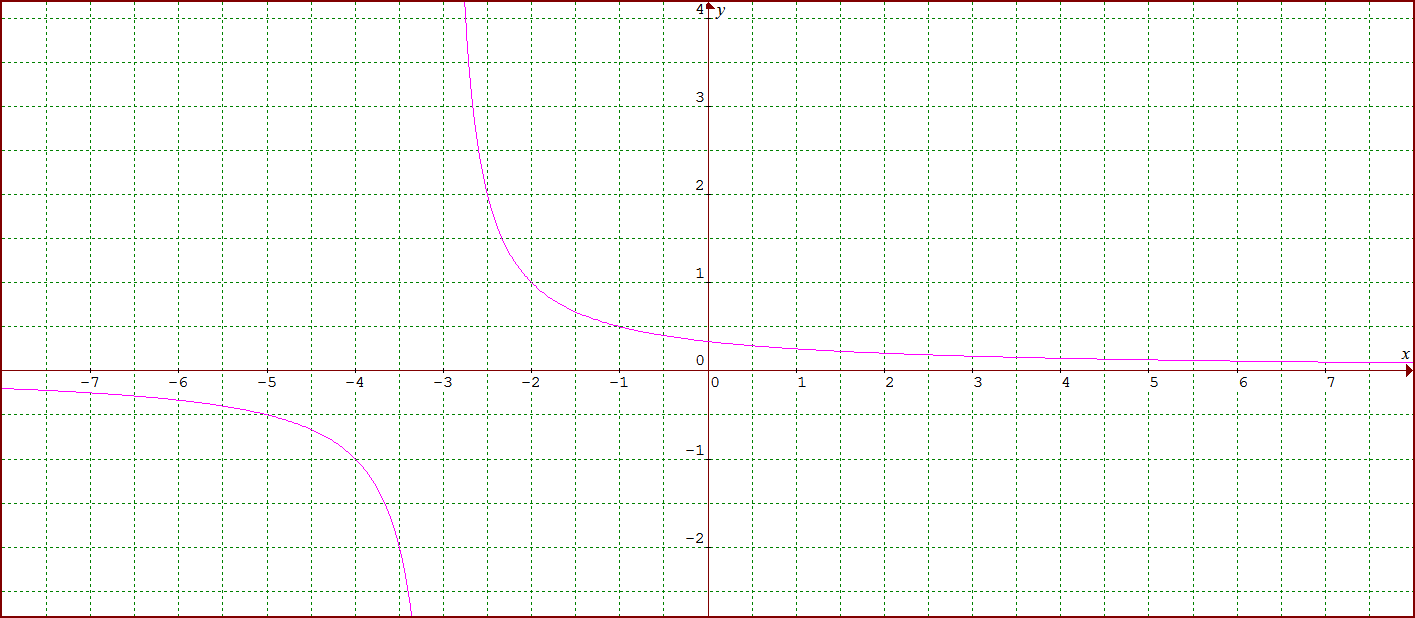
**\*WARNING\*** When you divide roots out of both the numerator and denominator, you must remember there is a hole at each root.

Ex)

The first step is to factor

divide (x + 2)

Now we graph that rational function with the methods that we learned yesterday which will yield something similar to the following:



However, since the domain is

That means at x = -3 there is a hole in the graph since it is undefined.

Here is a good website that explains it.

http://www.purplemath.com/modules/grphrtnl4.htm