Def: any inequality involving a polynomial on one or both sides of the inequality symbol is called a **polynomial inequality.**

Ex: What do these polynomial inequalities mean? Look at the graph, and think about this question again.

The solution set for a) is the set of all x values that makes the inequality true. So consider the graph.

This is a parabola facing up with x-intercepts at . Since it faces up everything between will have a y value less than 0, so then everything above and below will have a y value that is greater than 0.

Sketch graph on a number line laid over the graph of the function. Show the solution set.

Same goes for b)

Ex: Find the solution set for the inequalities

Show roots, then show how to test the intervals to show if the function is pos or neg. Sketch the function under a number line, then show the solution set.

Ex: Solve the Rational Inequality

Solution:

So for the inequality lets test the intervals:

A: , Pick the easy value of

Is no, so x=0 is not a solution

B: , Pick the value of

Yes, so is one of many solutions in this solution set.

C: , pick an easy number to plug in; perhaps

N0, so is not in the solution set.