Solving Inequalities - General

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If we find that $LHS = RHS$ at $x = 1, 4$ then we can use this to split up the number line.

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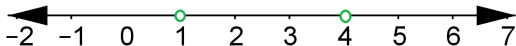$$LHS < RHS$$

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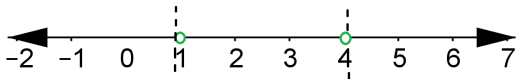
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Now, we know that in each region the larger side can't change.

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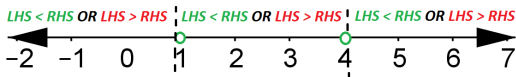
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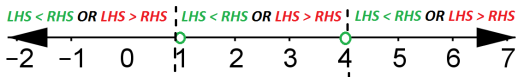
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It is all or nothing.

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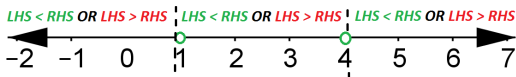
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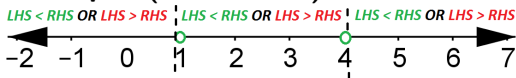
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How do we figure out which situation we're in?

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−2 −1 0 1 2 3 4 5 6 7

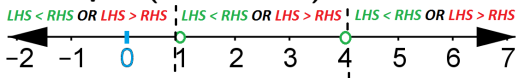In each region *LHS > RHS* for every value (no solutions) OR *LHS < RHS* for every value (solutions)

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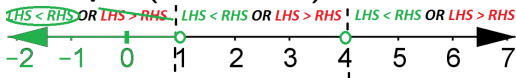
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To figure out if the LHS or RHS is larger, pick an x-value in that region and see which is larger at that value.

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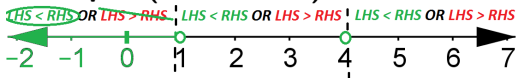
If the $LHS < RHS$ for **one** value, then $LHS < RHS$ for **every** value on the region.

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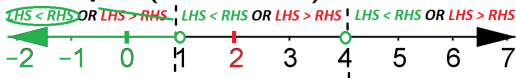If **one** value in a region is a solution, then **every** value in the region is a solution

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If **one** value in a region is a solution, then **every** value in the region is a solution

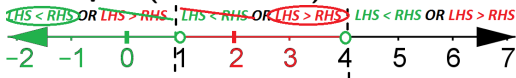Similarly, if **one** value in a region is not a solution

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Similarly, if **one** value in a region is not a solution, then **every** value in the region is not a solution