

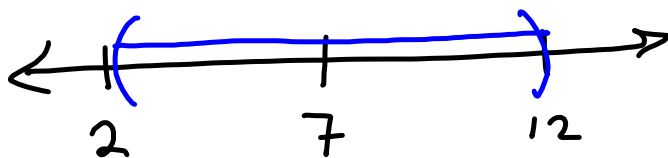
AND -vs- OR
 conditions for membership

- ① $\{x \mid x \text{ is rich AND } x \text{ is famous}\}$
- ② $\{x \mid x \text{ is rich OR } x \text{ is famous}\}$

AND

$|x - 7| < 5$

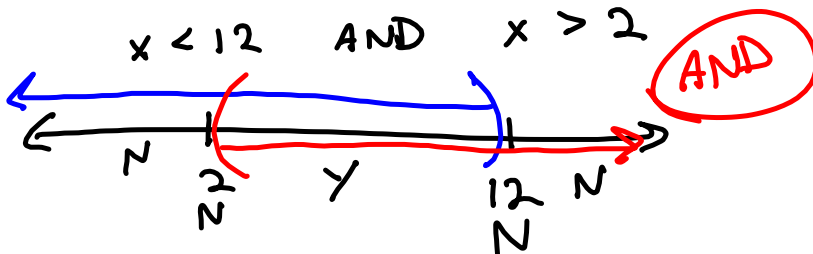
$x - 7 < 5$ AND $x - 7 > -5$



x

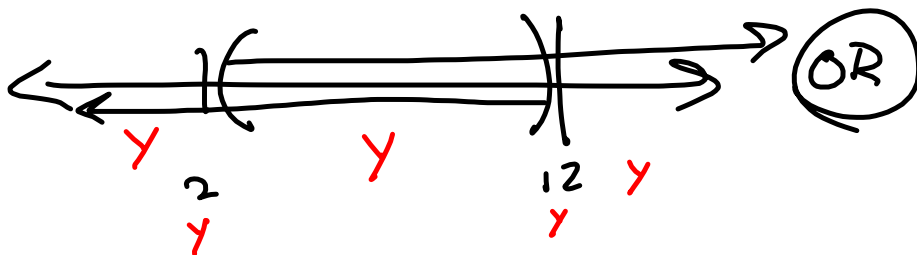
$x - 7 < 5$ AND $x - 7 > -5$

$x < 12$ AND $x > 2$



$x \in (2, 12)$

SAME PICTURE: "OR" So "OR" makes things BIGGER



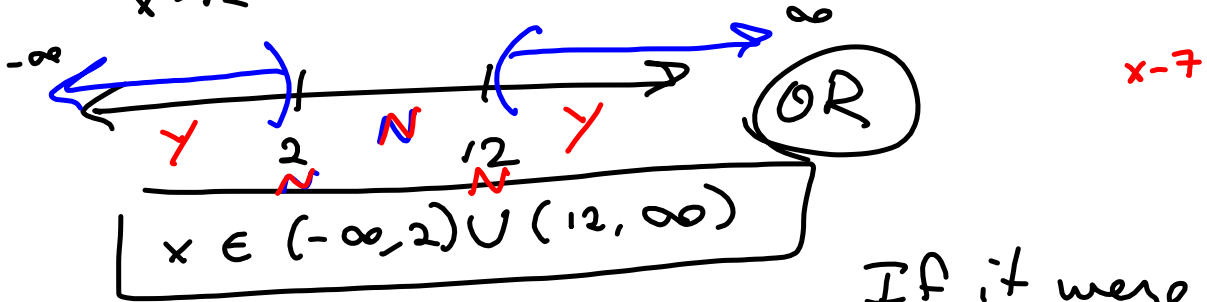
$x \in (-\infty, \infty) = \mathbb{R}$

$|x-7| > 5$ OR $|x-7| > 5$ means S

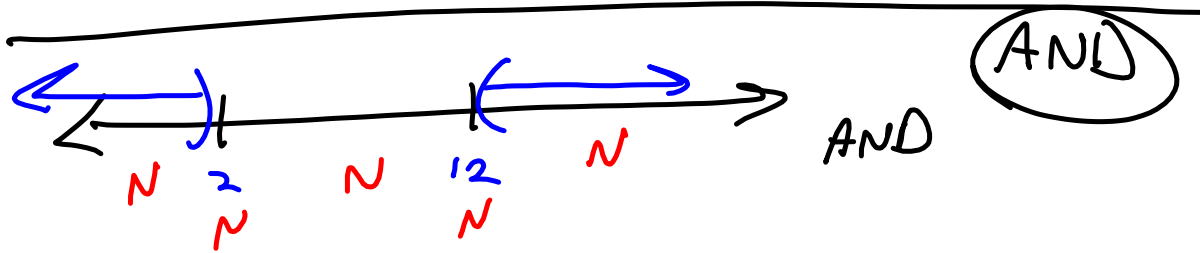
$x-7 > 5$ OR $x-7 < -5$



$x > 12$ OR $x < 2$



If it were



OR INCLUDES
AND EXCLUDES



$|A| < B$
 ~~$A < B$~~ AND ~~$A > -B$~~

$|A| > B$
 $A > B$ OR $A < -B$