USING SET BUILDER & INTERVAL NOTATION

Example 1: Show how to represent all real numbers from negative three up to and including positive two.

\[ \{x \mid -3 < x \leq 2\} \]

Interval Notation: \((-3, 2]\)

Example 2: Show how to represent all numbers from negative infinity up to and including negative five as well as all numbers from positive three to positive infinity.

\[ \{x \mid x \leq -5 \cup x > 3\} \]

Interval Notation: \((-\infty, -5]\ \cup\ (3, \infty)\)

Example 3: Optional ways of showing a number line.

i.e. An open circle does not include the point whereas a solid circle does include the point.

Example 4: Summary of mathematical symbols

< less than \quad \leq \quad \text{less than or equal}

> greater than \quad \geq \quad \text{greater than or equal to}

( or ) does not include the actual point

[ or ] does include the actual point

\cup \quad \text{union or “or”}

\cap \quad \text{disjunction or “and” (mutually exclusive)}