First Degree Inequalities

Set

Roster notation

Inequalities

< less than
≤ less than or equal to
> Greater than
≥ greater than or equal to
≠ not equal

Open vs. Closed

\[
\begin{align*}
\{ &< \\
\{ &> \\
\{ &≠
\end{align*}
\]

Set Builder notation

Interval notation

Empty set or null set

Multiply or dividing the entire inequality by a negative

Examples

Given \(A = \{a, b, d, m\}\) and \(B = \{b, c, m, n\}\), find \(A \cup B\) and \(A \cap B\)

Given \(A = \{1, 2, 3, 4\}\) and \(B = \{b, c, m, n\}\), find \(A \cup B\) and \(A \cap B\)
\((3, \infty)\) \hspace{1cm} (-\infty, 5] \hspace{1cm} [8, 9)

\[6x + 4 \geq 22\]

\[-2x + 3 > 4x - 5\]

\[\frac{1}{5}x - \frac{2}{3} \leq \frac{3}{10}x + \frac{5}{6}\]

\[8 + 3(5x - 7) < 9 - [4 - 6(2 - x)]\]