



Vocabulary: Compound Inequalities



Vocabulary

- **Boundary point** - a point separating the solution of an inequality from points not in the solution.
 - The graph of $x \leq 4$, shown to the right, has a boundary point at 4.
- **Compound inequality** – a combination of more than one inequality.
 - Compound inequalities contain *and* or *or*.
- **Inequality** – a statement that compares two quantities or expressions that are not equal.
 - A *strict inequality* uses one of the following symbols: $<$ (less than), $>$ (greater than), or \neq (not equal to).
 - Examples of strict inequalities are $x > 2$, and $x + 1 < 5$.
 - Inequalities that are not strict use the symbols \leq (less than or equal to) or \geq (greater than or equal to).
 - Examples of inequalities that are not strict are $x \leq 6$, and $2x \geq 4$.
- **Intersection (of sets)** – the set of elements that are the same in different sets.
 - Compound inequalities containing *and* are intersections.
 - For example, the solution of $x > 3$ and $x < 5$ is $3 < x < 5$, the set of all numbers that satisfy both inequalities.
 - The symbol “ \cap ” is commonly used to indicate the intersection of sets.
- **Union (of sets)** – the set of all elements contained in different sets.
 - Compound inequalities containing *or* are unions.
 - For example, the solution of $x > 3$ or $x < 5$ is the set of all numbers that satisfy either inequality (or both) – in other words, the set of all real numbers.
 - The symbol “ \cup ” is commonly used to indicate the union of sets.
- **Solution** – a value that makes an equation or inequality true.
 - For example, 3 is a solution of the inequality $2x \leq 8$ because $2(3) \leq 8$.

