

# Compound Inequalities Video Lecture

## Section 9.1

### Course Learning Objectives:

**Solve certain types of linear inequalities.**

### Weekly Learning Objectives:

- 1) Find the intersection and union of two sets.**
- 2) Solve triple inequalities.**
- 3) Solve compound inequalities containing and.**
- 4) Solve compound inequalities containing or.**

## Compound Inequalities

**Compound Inequalities:** two inequalities joined by the words **AND** or **OR**.

**Intersection (AND):** the set of all values common to both sets

Notation:

**Union (OR):** the set of all values in both sets together

Notation:

$$x \leq 7 \text{ and } x < 2$$

$$x > 3 \text{ or } x > -1$$

$$x + 4 > 0 \text{ and } 4x > 0$$

$$x + 1 > 3 \text{ or } x + 4 < 2$$

$$2x < 6 \text{ and } 3(x-2) > 6$$

$$2x - 6 \leq -18 \text{ or } 2x \geq -18$$

$$-1 < \frac{2x-5}{6} \leq 6$$

$$3x < x+10 \text{ or } -x+1 > 10$$

$$(-2, 3) \cap (-\infty, -3)$$

$$[-1, 2] \cup (0, 5)$$

$$x + 3 < 2x + 1 < 4x + 6$$