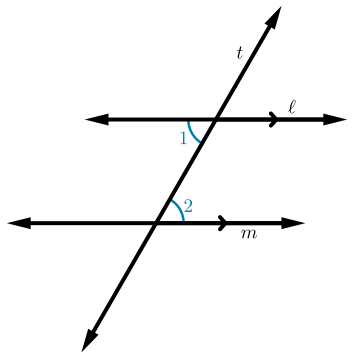
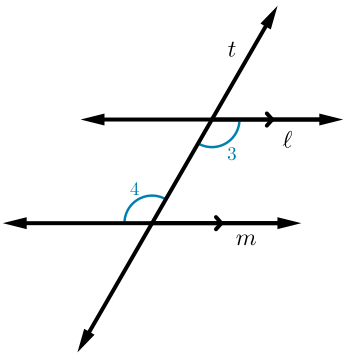
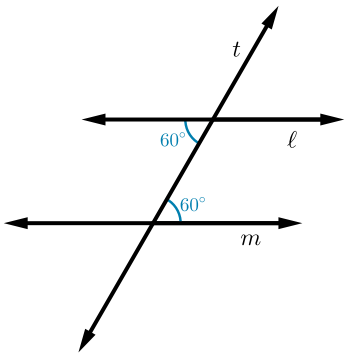
Alternate Interior Angles Theorem

Examples & Non-Examples

Example	Example	Non-Example
		
Since lines l and m are parallel, then angles 1 and 2 are congruent because they are alternate interior angles.	*Since lines l and m are parallel, then angles 3 and 4 are congruent because they are alternate interior angles.*	*Since these are alternate interior angles, and they are congruent, then lines l and m must be parallel.*

Definition

The **Alternate Interior Angles Theorem** states:

> "If two parallel lines are cut by a transversal, then each pair of alternate interior angles is congruent."

In simple terms:

- When a transversal crosses two **parallel** lines,
- The **alternate interior angles** (on opposite sides of the transversal and **between** the two lines)
- Are always **equal in measure**.

Example:

If line $l \| \ | m$, and transversal t intersects them, then:

- Angle 5 and angle 6 form a pair of **alternate interior angles**, and **angle 5 ≅ angle 6**.