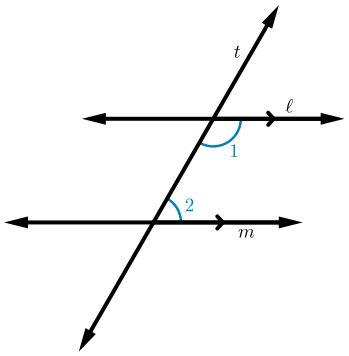
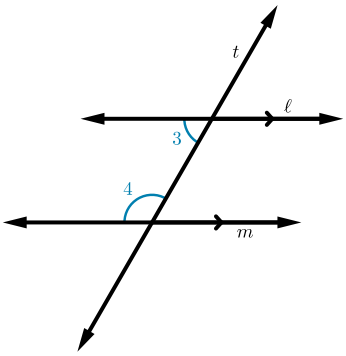
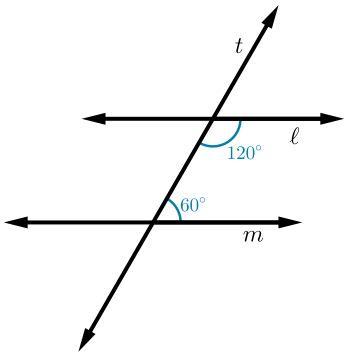
Same-Side Interior Angles Theorem

Examples & Non-Examples

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

Definition

The **Same-Side Interior Angles Theorem** states:

> "**If two parallel lines are cut by a transversal, then the same-side interior angles are supplementary.**"

In simpler terms:

- When a **transversal** crosses two **parallel** lines,
- The two angles that are **on the same side** of the transversal and **inside** the parallel lines
- Will always **add up to** $180°$

Also known as:

- The **Consecutive Angles Theorem**

Example:

If lines $l \| \ \| m$, and a transversal t crosses them:

- $\angle 3$ and $\angle 4$ are on the same side of the transversal and inside the lines
  → Then: $\angle 3 + \angle 4 = 180°$