

# Theorem

## Examples & Non-Examples

Example	Example	Non-Example
Vertical angles are congruent.  This isn't something we just assume—it can be <b>proven</b> using logic and other facts.	The sum of the angles in a triangle is $180^\circ$ .  Again, this is a theorem because it can be proven, not just accepted without proof.	A square has four sides.  This is not a theorem—it's a definition.

## Definition

In Geometry, a **theorem** is:

“A **statement that can be proven true** using logic, definitions, postulates, and previously proven theorems.”

### Key characteristics:


- A theorem is **not just assumed** to be true — it **requires proof**.
- It is a **logical conclusion** based on accepted facts.
- Theorems are often used to prove other, more complex theorems.

### Example:

**The Vertical Angles Theorem:** Vertical angles are congruent.

This isn't just assumed — it's **proven** using geometric reasoning.

### Compare to a postulate:

-  **Postulate:** Accepted without proof
-  **Theorem:** Must be **proven** to be accepted as true

