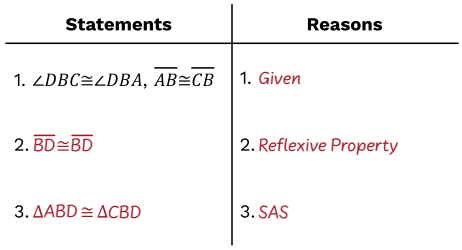
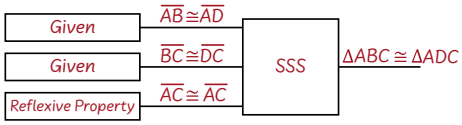
Proof

Examples & Non-Examples

✔ Example	✔ Example	✖ Non-Example
		

Definition

A **proof** is a **logical argument** that shows a mathematical statement is **always true** using **definitions, postulates (axioms), previously proven theorems**, and rules of **logical reasoning**.

Formal Definition:

A **proof** is a **step-by-step explanation** that demonstrates the **truth of a geometric statement** by using **logical reasoning and accepted mathematical principles**.

Key Characteristics:

- Built on **known facts**: definitions, postulates, and theorems.
- Uses **deductive reasoning** to connect statements logically.
- Often presented in formats such as:
  - **Two-column proofs**
  - **Paragraph proofs**
  - **Flowchart proofs**

Example (Outline):

To prove that the base angles of an isosceles triangle are congruent, a proof would:

1. Start with the given triangle and known properties (e.g., two sides are equal).
2. Apply definitions and theorems (like the congruence of triangles).
3. Conclude that the base angles must be equal.

A proof ensures that a statement is **not just believed to be true**, but **guaranteed to be true** in every case under the given conditions.