

Transitive Property of Congruence

Examples & Non-Examples

Example	Example	Non-Example
If segment $AB \cong CD$ and segment $CD \cong EF$, then segment $AB \cong EF$.	If $\angle X \cong \angle Y$ and $\angle Y \cong \angle Z$ then $\angle X \cong \angle Z$.	If $\angle A \cong \angle B$ and $\angle C \cong \angle D$ then $\angle A \cong \angle D$.

Definition

The **Transitive Property of Congruence** states that:

“If two geometric figures are each congruent to a third figure, then they are congruent to each other.”

In symbols:

If
 $A \cong B$
and
 $B \cong C$,
then
 $A \cong C$

Example:

If segment $AB \cong CD$ and segment $CD \cong EF$, then segment $AB \cong EF$.

This property is most often used when proving that angles or segments are congruent in two-column proofs.

