Congruent Right Triangles: HL, LL, HA, LA

How to know if a triangle is a right triangle:

1. The problem will state that the angles are right angles ex.) $\angle A$ and $\angle B$ are right angles

2. The right angle box will be provided in the triangle picture ex.) $\angle$

3. The problem will state that 2 segments are perpendicular ex.) $AB \perp BC$
Conversions to Right Triangles

- SSS $\Rightarrow$ HL or LL
- SAS $\Rightarrow$ LL
- ASA $\Rightarrow$ LA
- AAS $\Rightarrow$ LA or HA
- SSA $\Rightarrow$ HL

What postulate (LL, LA, HL, HA) proves that the triangles are congruent?
NEI

Not vertical \( \angle s \)

LL

HL

LL
What must you know before you can use HA, LA, LL, HL?

If the triangles are right triangles.

In a racquetball game, a ball is hit from the right wall at C to the middle of the front wall at D. It rebounds to the left wall at E. Since P and O are corners of a room, they form right angles.

Point D is the midpoint of OP. The ball rebounds at the same angle at which it strikes the wall, thus \( \angle PDC \cong \angle ODE \). Which postulate explains why \( \triangle CPD \cong \triangle EOD \)?

**ASA**

R is the midpoint of both PT and QS. Which theorem explains why \( \angle PRQ \cong \angle TRS \)? Which postulate supports \( \triangle PRQ \cong \triangle TRS \)?

In \( \triangle ABC \) and \( \triangle DEF \), \( AB \cong DE \), \( AC \cong DF \), and \( \angle A \cong \angle D \). Which postulate can explain why \( \triangle ABC \cong \triangle DEF \)? **SAS**