Geometry

4.4 Prove Triangles Congruent by SAS and HL

# SAS

## SAS (Side-Angle-Side Congruence Postulate)

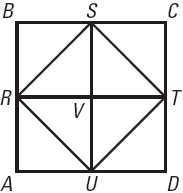
congruent

included

Two sides

If \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_ and the \_\_\_\_\_\_\_\_\_\_\_\_ angle of one triangle are \_\_\_\_\_\_\_\_\_\_\_\_\_ to two sides and the included angle of another triangle, then the two triangles are \_\_\_\_\_\_\_\_\_\_\_\_\_.

congruent



Given: ABCD is square; R, S, T, and U are midpts; ;

Prove:

|  |  |
| --- | --- |
| Statements | Reasons |
| 1. ABCD is square; R, S, T, and U are midpts; ; | 1. given |
| 2. and are rt angles | 2. lines form 4 rt s |
| 3. | 3. all rt angle are congruent |
| 4. | 4. reflexive |
| 5. | 5. SAS |

# HL

Right triangles are special

If we know two sides are congruent we can use the Pythagorean Theorem (ch 7) to show that the third sides are congruent

hypotenuse

leg

\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_

\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_

\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_

leg

## HL (Hypotenuse-Leg Congruence Theorem)

hypotenuse

right

leg

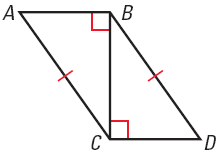
hypotenuse

If the \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_ and a \_\_\_\_\_\_\_\_ of a \_\_\_\_\_\_\_\_\_ triangle are congruent to the \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_ and a \_\_\_\_\_\_\_\_ of another \_\_\_\_\_\_\_\_\_\_ triangle, then the two triangles are \_\_\_\_\_\_\_\_\_\_\_\_\_\_.

congruent

right

leg

Given: and are rt s;

Prove:

|  |  |
| --- | --- |
| Statements | Reasons |
| 1. and are rt s; | 1. given |
| 2. and are rt | 2. def rt |
| 3. | 3. reflexive |
| 4. | 4. HL |

Assignment: 243 #4-28 even, 32-48 even = 22 total