

## Proving the Triangle Congruence Theorems

### Sentence Frames for Proofs

#### Transformations:

- Translate \_\_\_\_\_ from \_\_\_\_\_ to \_\_\_\_\_.
- Rotate \_\_\_\_\_ using \_\_\_\_\_ as the center by angle \_\_\_\_\_.
- Rotate \_\_\_\_\_ using \_\_\_\_\_ as the center so that \_\_\_\_\_ coincides with \_\_\_\_\_.
- Reflect \_\_\_\_\_ across \_\_\_\_\_.
- Reflect \_\_\_\_\_ across the perpendicular bisector of \_\_\_\_\_.
- Segments \_\_\_\_\_ and \_\_\_\_\_ are the same length so they are congruent. Therefore, there is a rigid motion that takes \_\_\_\_\_ to \_\_\_\_\_. Apply that rigid motion to \_\_\_\_\_.

#### Justifications:

- We know the image of \_\_\_\_\_ is congruent to \_\_\_\_\_ because rigid motions preserve measure.
- Points \_\_\_\_\_ and \_\_\_\_\_ coincide after translating because we defined our translation that way!
- Since points \_\_\_\_\_ and \_\_\_\_\_ are the same distance along the same ray from \_\_\_\_\_ they have to be in the same place.
- Rays \_\_\_\_\_ and \_\_\_\_\_ coincide after rotating because we defined our rotation that way!
- The image of \_\_\_\_\_ must be on ray \_\_\_\_\_ since both \_\_\_\_\_ and \_\_\_\_\_ are on the same side of \_\_\_\_\_ and make the same angle with it at \_\_\_\_\_.
- Points \_\_\_\_\_ and \_\_\_\_\_ coincide because they are both at the intersection of the same lines, and 2 distinct lines can only intersect in 1 place.
- \_\_\_\_\_ is the perpendicular bisector of the segment connecting \_\_\_\_\_ and \_\_\_\_\_, because the perpendicular bisector is determined by 2 points that are both equidistant from the endpoints of a segment.

#### Conclusion statement:

- We have shown that a rigid motion takes \_\_\_\_\_ to \_\_\_\_\_, \_\_\_\_\_ to \_\_\_\_\_, and \_\_\_\_\_ to \_\_\_\_\_, therefore triangle \_\_\_\_\_ is congruent to triangle \_\_\_\_\_.