Invisible Triangles

Transformer

Listen to hear which parts of the triangles correspond. Then give instructions to take one triangle onto the other.

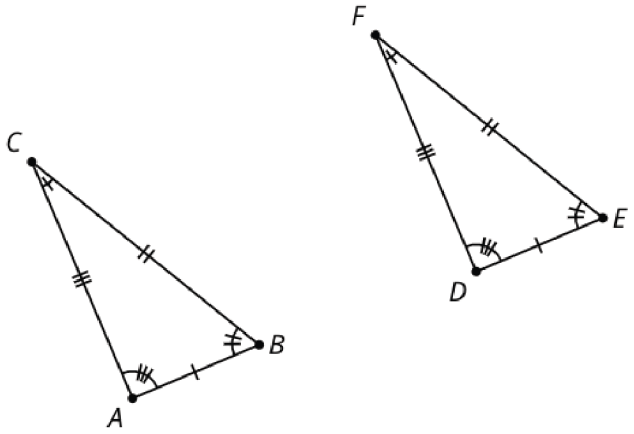
Possible instructions:

- 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 _____.

Invisible Triangles

Card A

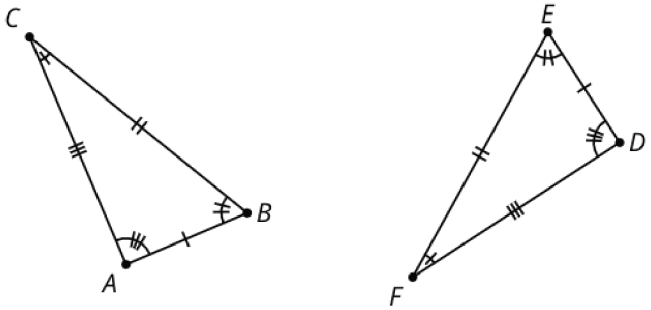
Tell the transformer which parts correspond.



Invisible Triangles

Card B

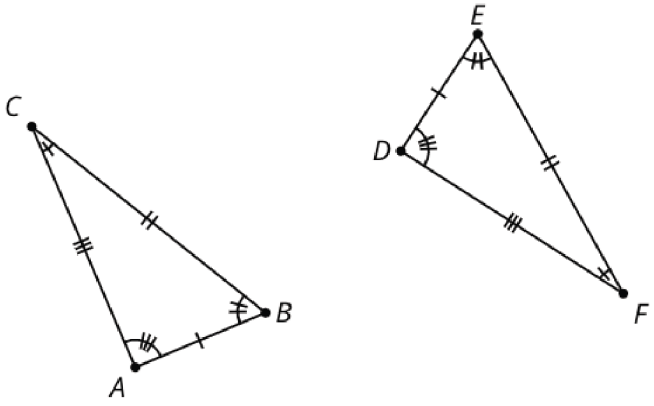
Tell the transformer which parts correspond.



Invisible Triangles

Card C

Tell the transformer which parts correspond.



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 _____.

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