Lesson 3.8.1: Applying Triangle Congruence in Constructing Angle Bisectors and Perpendicular Lines

Angle bisector: a line, ray, or segment that divides an angle into two congruent angles
Perpendicular segments or lines: segments or lines that intersect at a common point forming 90–degree angle
Constructing an angle bisector using two congruent triangles

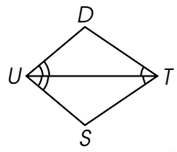
1. Given two congruent triangles, determine the other corresponding parts that are congruent.
2. Put the two triangles in such a way that a pair of corresponding sides coincide.
3. Determine the common side.
4. Determine the adjacent angles formed.
5. Determine the relationship of the adjacent angles.
6. Determine the relationship of any one of adjacent angles to the sum of their measures.

Constructing perpendicular lines using two congruent right triangles

1. Given two congruent right triangles, determine the other corresponding parts that are congruent.
2. Put the two triangles side by side in such a way that the vertices of the non-corresponding acute angles coincide.
3. Determine the adjacent angles formed.
4. Determine the relationship of the adjacent angles.

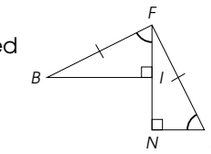
Practice Exercises 3.8.1

Use the given two congruent triangles to answer the questions that follow.
A. Given $\triangle DTU \cong \triangle STU$.



1. What triangle congruence postulate is illustrated in the figure?
2. What are the corresponding congruent sides?
3. What are the corresponding congruent angles?
4. What are the pairs of adjacent angles?
5. How are the adjacent angles related to each other?
6. What does the common side do to the adjacent angles?

B. Given $\triangle FNE \cong \triangle BIF$.



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Use the given two congruent triangles to answer the questions that follow.
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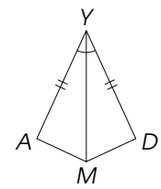

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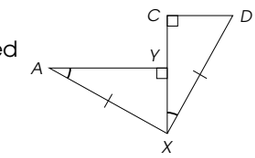

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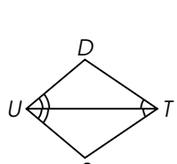

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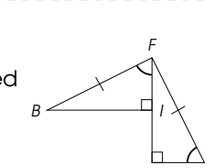

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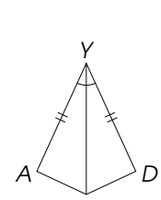

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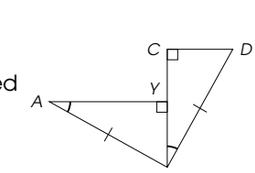

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