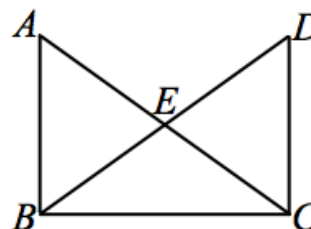# Lesson 26: Triangle Congruency Proofs
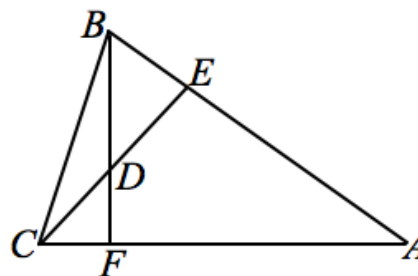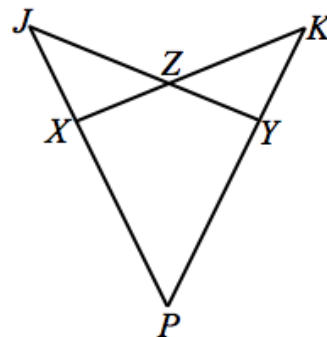
Classwork

Exercises 1–6

1. Given: $\overline{AB} \perp \overline{BC}$, $\overline{BC} \perp \overline{DC}$.

    $\overline{DB}$ bisects $\angle ABC$, $\overline{AC}$ bisects $\angle DCB$.

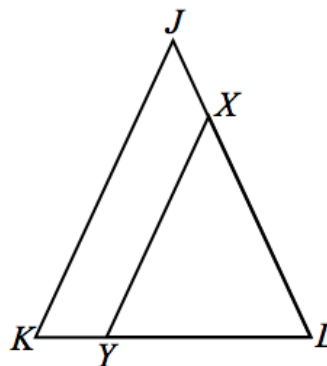 $EB = EC$.

    Prove: $\triangle BEA \cong \triangle CED$.

2. Given: $BF \perp AC$, $CE \perp AB$.

    $AE = AF$.

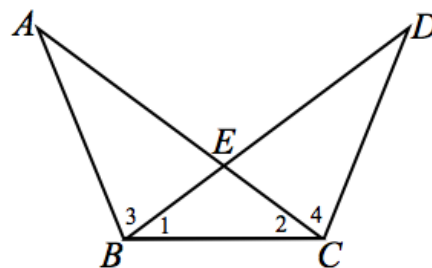   Prove: $\triangle ACE \cong ABF$.

3. Given: $XJ = YK$, $PX = PY$, $\angle ZXJ = \angle ZYK$.
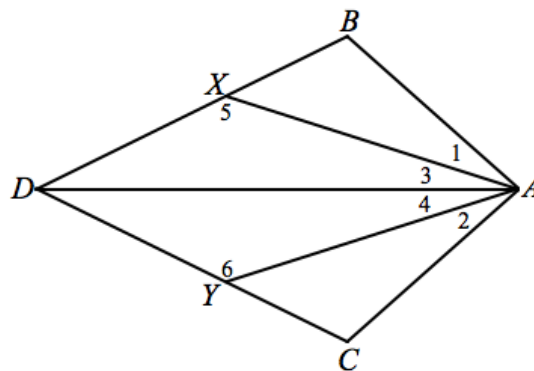   Prove: $JY = KX$.

4. Given: $JK = JL$, $\overline{JK} \parallel \overline{XY}$.
    Prove: $XY = XL$.

5. Given: $\angle 1 \cong \angle 2$, $\angle 3 \cong \angle 4$.
    Prove: $\overline{AC} \cong \overline{BD}$.

6. Given: $m\angle 1 = m\angle 2$, $m\angle 3 = m\angle 4$, $AB = AC$.
    Prove: (a) $\triangle ABD \cong \triangle ACD$.
               (b) $m\angle 5 = m\angle 6$.

Problem Set

Use your knowledge of triangle congruence criteria to write a proof for the following:

In the figure $\overline{RX}$ and $\overline{RY}$ are the perpendicular bisectors of $\overline{AB}$ and $\overline{AC}$, respectively.

Prove: (a) $\triangle RAX \cong \triangle RAY$.

       (b) $\overline{RA} \cong \overline{RB} \cong \overline{RC}$.