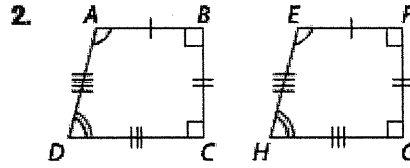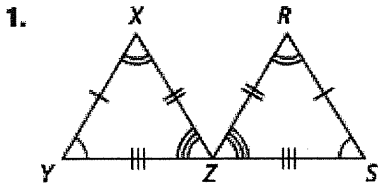Mon (11/16)

(pg. 1) **Show that polygons are congruent by identifying all congruent corresponding parts. Then write a congruence statement.**

1.

2.

8. PROOF Write a paragraph proof.

Given: $\angle WXZ \cong \angle YXZ$, $\angle XZW \cong \angle XZY$,
$\overline{WX} \cong \overline{YX}$, $\overline{WZ} \cong \overline{YZ}$
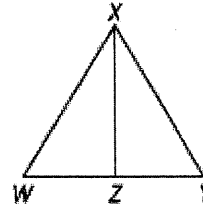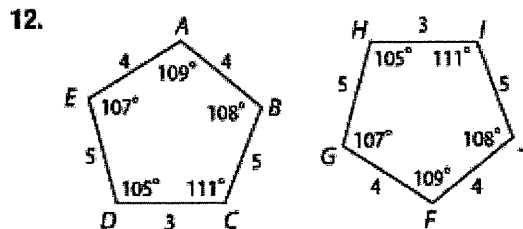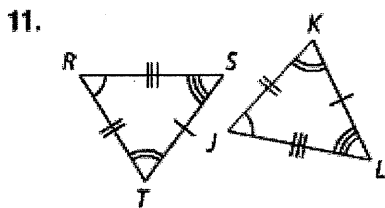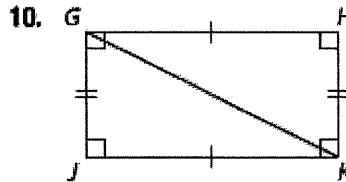
Prove: $\triangle WXZ \cong \triangle YXZ$

Show that polygons are congruent by identifying all congruent corresponding parts. Then write a congruence statement.
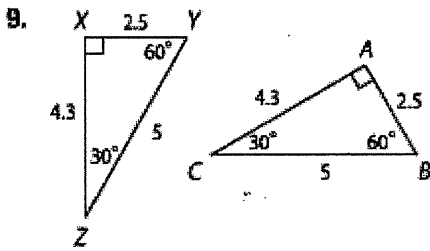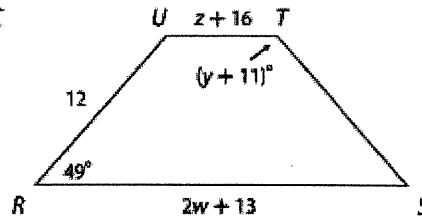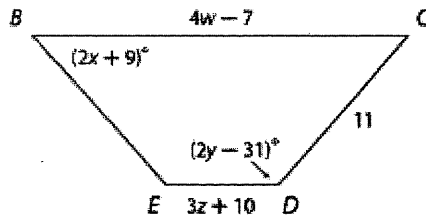
9.

10.

11.

12.

Polygon BCDE ≅ polygon RSTU. Find each value.

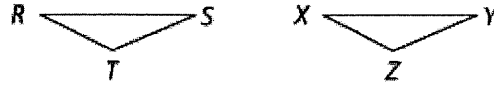**13.** x **14.** y **15.** z **16.** w

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22. PROOF Put the statements used to prove the statement below in the correct order. Provide the reasons for each statement.

Congruence of triangles is symmetric. (Theorem 4.4)

Given: $\triangle RST \cong \triangle XYZ$

Prove: $\triangle XYZ \cong \triangle RST$

Proof:

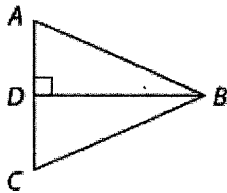| $\angle X \cong \angle R, \angle Y \cong$ $\angle S, \angle Z \cong \angle T, \overline{XY}$ $\cong \overline{RS}, \overline{YZ} \cong \overline{ST},$ $\overline{XZ} \cong \overline{RT}$	$\angle R \cong \angle X, \angle S \cong$ $\angle Y, \angle T \cong \angle Z, \overline{RS}$ $\cong \overline{XY}, \overline{ST} \cong \overline{YZ},$ $\overline{RT} \cong \overline{XZ}$		$\triangle RST \cong \triangle XYZ$	$\triangle XYZ \cong \triangle RST$
____?____	____?____		____?____	____?____

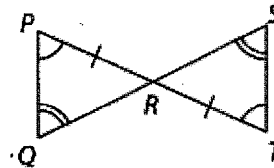**Write a 2-column Proof**

23. Given: $\overline{BD}$ bisects $\angle B$.
        $\overline{BD} \perp \overline{AC}$

Prove: $\angle A \cong \angle C$

24. Given: $\angle P \cong \angle T, \angle S \cong \angle Q$
        $\overline{TR} \cong \overline{PR}, \overline{RP} \cong \overline{RQ},$
        $\overline{RT} \cong \overline{RS}$
        $\overline{PQ} \cong \overline{TS}$

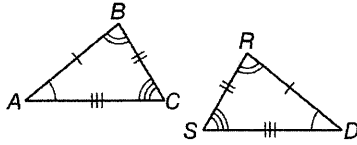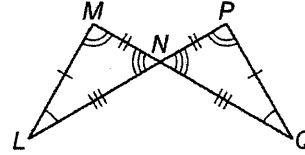**Prove:** $\triangle PRQ \cong \triangle TRS$

2

4-3 Practice
ongruent Triangles

Show that the polygons are congruent by indentifying all congruent corresponding parts. Then write a congruence statement.
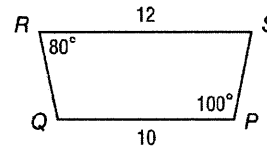
1.

2.

Polygon $ABCD \cong$ **polygon** $PQRS$.

3. Find the value of x.
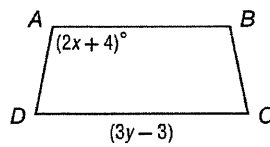
4. Find the value of y.

5. **PROOF** Write a two-column proof.

   Given: $\angle P \cong \angle R$, $\angle PSQ \cong \angle RSQ$, $\overline{PQ} \cong \overline{RQ}$,

       $\overline{PS} \cong \overline{RS}$

   Prove: $\triangle PQS \cong \triangle RQS$

6. **QUILTING**

   a. Indicate the triangles that appear to be congruent.

   b. Name the congruent angles and congruent sides
      of a pair of congruent triangles.

4-3 Study Guide and Intervention (continued)
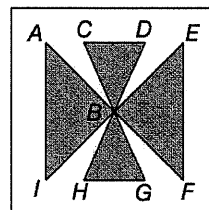
Congruent Triangles

Prove Triangles Congruent Two triangles are congruent if and only if their corresponding parts are congruent. Corresponding parts include corresponding angles and corresponding sides. The phrase "if and only if" means that both the conditional and its converse are true. For triangles, we say, "Corresponding parts of congruent triangles are congruent," or CPCTC.

Example Write a two-column proof.

Given: $\overline{AB} \cong \overline{CB}$, $\overline{AD} \cong \overline{CD}$, $\angle BAD \cong \angle BCD$
$\overline{BD}$ bisects $\angle ABC$

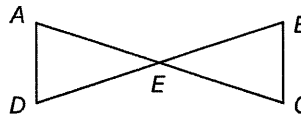**Prove:** $\triangle ABD \cong \triangle CBD$
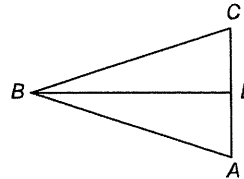
Proof:

Statement	Reason
1. $\overline{AB} \cong \overline{CB}$, $\overline{AD} \cong \overline{CD}$	1. Given
2. $\overline{BD} \cong \overline{BD}$	2. Reflexive Property of congruence
3. $\angle BAD \cong \angle BCD$	3. Given
4. $\angle ABD \cong \angle CBD$	4. Definition of angle bisector
5. $\angle BDA \cong \angle BDC$	5. Third Angles Theorem
6. $\triangle ABD \cong \triangle CBD$	6. CPCTC

Exercises

Write a two-column proof.

1. **Given:** $\angle A \cong \angle C$, $\angle D \cong \angle B$, $\overline{AD} \cong \overline{CB}$, $\overline{AE} \cong \overline{CE}$, $\overline{AC}$ bisects $\overline{BD}$

   Prove: $\triangle AED \cong \triangle CEB$

Write a paragraph proof.

2. **Given:** $\overline{BD}$ bisects $\angle ABC$ and $\angle ADC$, $\overline{AB} \cong \overline{CB}$, $\overline{AB} \cong \overline{AD}$, $\overline{CB} \cong \overline{DC}$

   Prove: $\triangle ABD \cong \triangle CBD$