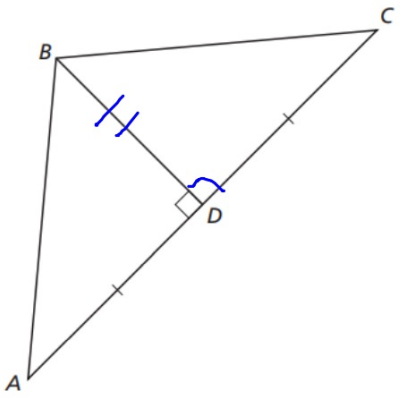
Extra Practice

In Exercises 1 and 2, write a proof.

1. **Given** $\overline{BD} \perp \overline{AC}$, $\overline{AD} \cong \overline{CD}$

   Prove $\triangle ABD \cong \triangle CBD$



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STATEMENTS	REASONS

5.3 Extra Practice

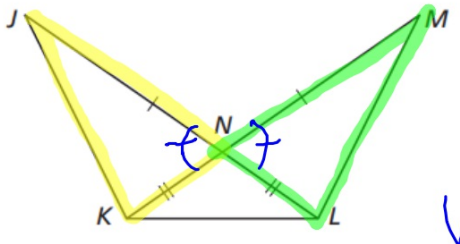
1.

STATEMENTS	REASONS
1. $\overline{AD} \cong \overline{CD}$	1. Given
2. $\overline{BD} \perp \overline{AC}$	2. Given
3. $\angle BDA \cong \angle BDC$	3. Linear Pair Perpendicular Theorem (Thm. 3.10)
4. $\overline{BD} \cong \overline{BD}$	4. Reflexive Property of Congruence (Thm. 2.1)
5. $\triangle ABD \cong \triangle CBD$	5. SAS Congruence Theorem (Thm. 5.5)

Right $\angle$s = 90°
def. right $\angle$s

2. Given $\overline{JN} \cong \overline{MN}, \overline{NK} \cong \overline{NL}$

Prove $\triangle JNK \cong \triangle MNL$



STATEMENTS	REASONS

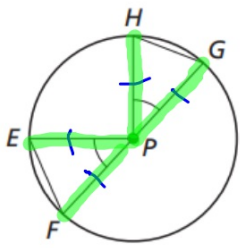
2.

STATEMENTS	REASONS
1. $\overline{JN} \cong \overline{MN}$	**1.** Given
2. $\overline{NK} \cong \overline{NL}$	**2.** Given
3. $\angle JNK \cong \angle MNL$	**3.** Vertical Angles Congruence Theorem (Thm. 2.6)
4. $\triangle JNK \cong \triangle MNL$	**4.** SAS Congruence Theorem (Thm. 5.5)

In Exercises 3 and 4, use the given information to name two triangles that are congruent. Explain your reasoning.

3. $\angle EPF \cong \angle GPH$, and P is the center of the circle.

given



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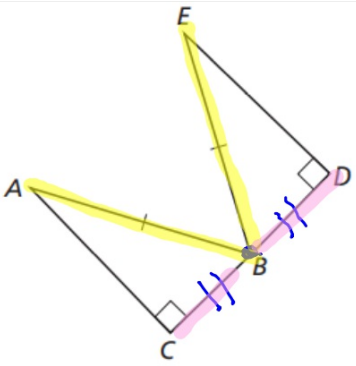
radii

3. $\triangle EPF \cong \triangle GPH$; Because all points on a circle are the same distance from the center, $\overline{PE} \cong \overline{PG}$ and $\overline{PF} \cong \overline{PH}$. It is given that $\angle EPF \cong \angle GPH$. So, $\triangle EPF \cong \triangle GPH$ by the SAS Congruence Theorem (Thm. 5.5).

6. Redraw the triangles so they are side by side with corresponding parts in the same position. Then write a proof.

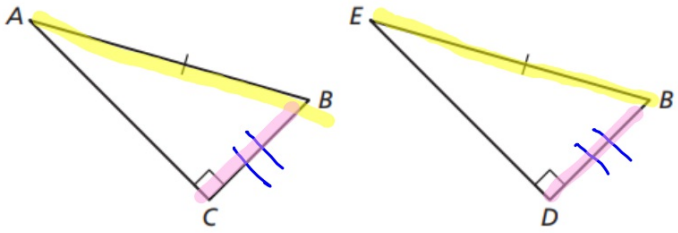


Given B is the midpoint of $\overline{CD}$,
$\overline{AB} \cong \overline{EB}, \angle C$ and $\angle D$ are right angles.

Prove $\triangle ABC \cong \triangle EBD$

STATEMENTS	**REASONS**

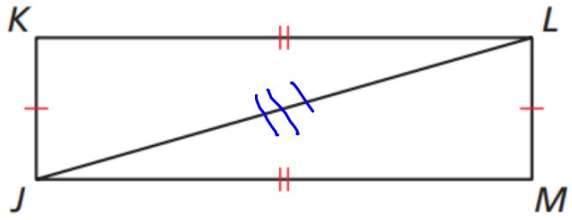
6.



STATEMENTS	REASONS
1. B is the midpoint of $\overline{CD}$, $\overline{AB} \cong \overline{EB}$, $\angle C$ and $\angle D$ are right angles.	**1.** Given
2. $\overline{BC} \cong \overline{BD}$	**2.** Definition of midpoint
3. $\triangle ABC$ and $\triangle EBD$ are right triangles.	**3.** Definition of a right triangle
4. $\triangle ABC \cong \triangle EBD$	**4.** HL Congruence Theorem (Thm. 5.9)

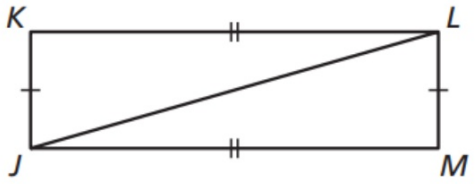
15. **Given** $\overline{LM} \cong \overline{JK}, \overline{MJ} \cong \overline{KL}$

Prove $\triangle LMJ \cong \triangle JKL$



15. Given $\overline{LM} \cong \overline{JK}, \overline{MJ} \cong \overline{KL}$

Prove $\triangle LMJ \cong \triangle JKL$



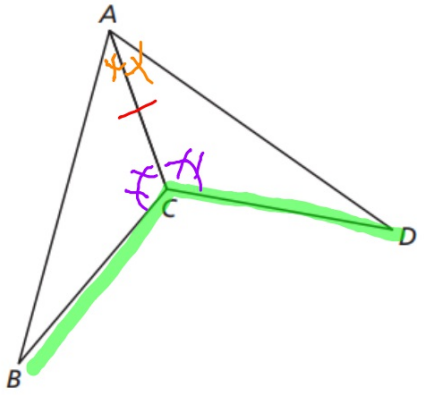
STATEMENTS	REASONS
1. $\overline{LM} \cong \overline{JK}, \overline{MJ} \cong \overline{KL}$	**1.** Given
2. $\overline{JL} \cong \overline{JL}$	**2.** Reflexive Property of Congruence (Thm. 2.1)
3. $\triangle LMJ \cong \triangle JKL$	**3.** SSS Congruence Theorem (Thm. 5.8)

5.6 Notetaking with Vocabulary (continued)

7. Prove that the triangles are congruent using the ASA Congruence Theorem (Theorem 5.10).

Given $\overline{AC}$ bisects $\angle DAB$ and $\angle DCB$.

Prove $\triangle ABC \cong \triangle ADC$



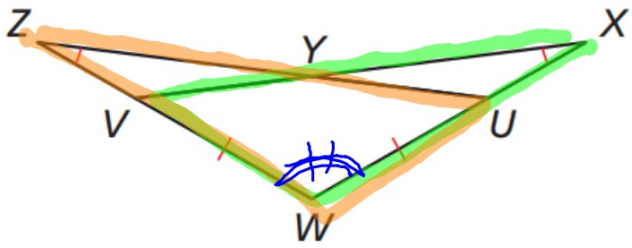
STATEMENTS	REASONS

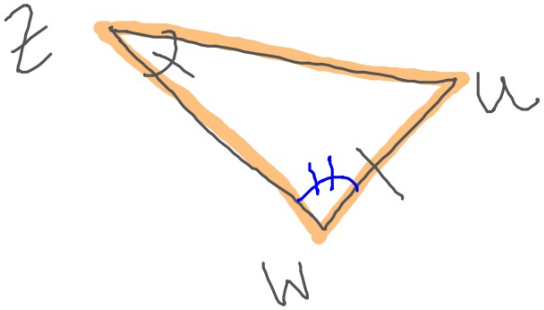
7.

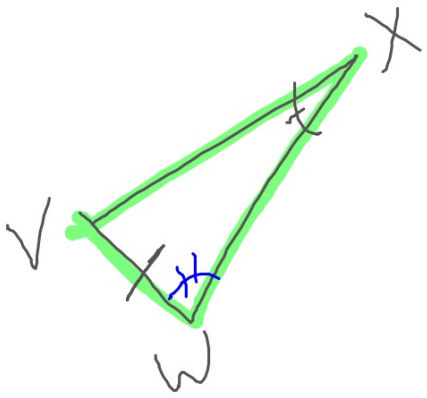
STATEMENTS	REASONS
1. $\overline{AC}$ bisects $\angle DAB$ and $\angle DCB$.	**1.** Given
2. $\angle CAB \cong \angle CAD$	**2.** Definition of angle bisector
3. $\angle ACB \cong \angle ACD$	**3.** Definition of angle bisector
4. $\overline{AC} \cong \overline{AC}$	**4.** Reflexive Property of Congruence (Thm. 2.2)
5. $\triangle ABC \cong \triangle ADC$	**5.** ASA Congruence Theorem (Thm. 5.10)

19. **Given** $\overline{VW} \cong \overline{UW}$, $\angle X \cong \angle Z$

Prove $\triangle XWV \cong \triangle ZWU$







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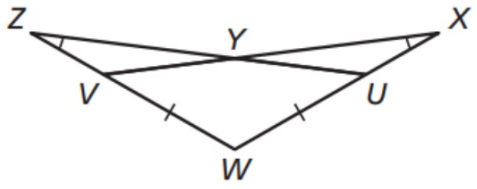
19. Given $\overline{VW} \cong \overline{UW}$, $\angle X \cong \angle Z$

Prove $\triangle XWV \cong \triangle ZWU$



STATEMENTS	REASONS
1. $\overline{VW} \cong \overline{UW}$, $\angle X \cong \angle Z$	**1.** Given
2. $\angle W \cong \angle W$	**2.** Reflexive Property of Congruence (Thm. 2.2)
3. $\triangle XWV \cong \triangle ZWU$	**3.** AAS Congruence Theorem (Thm. 5.11)