

Name KEY

Date: _____

Period: _____

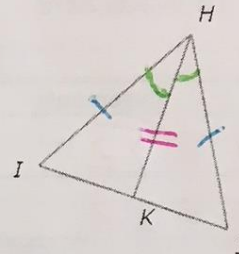
Geo w/ Trig

Proofs with CPCTC Practice

Use the statements provided to complete the proof. Be sure to fill in the reasons too! **Mark the diagram first!**

1. Given: \overline{HK} bisects $\angle IHJ$
 $\overline{HI} \cong \overline{HJ}$

Prove: \overline{HK} bisects \overline{IJ}



Statements			
\overline{HK} bisects $\angle IHJ$	$\angle IHK \cong \angle JHK$	\overline{HK} bisects \overline{IJ}	$\overline{IK} \cong \overline{JK}$
$\triangle IHK \cong \triangle JHK$	$\overline{HI} \cong \overline{HJ}$	$\overline{HK} \cong \overline{HK}$	

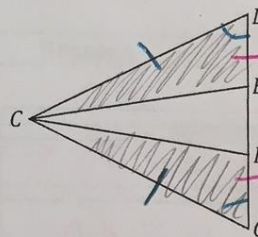
Statements	Reasons
1. \overline{HK} bisects $\angle IHJ$	1. Given
2. $\angle IHK \cong \angle JHK$	2. Segment bisects $\angle \rightarrow 2 \cong 2$
3. $\overline{HI} \cong \overline{HJ}$	3. Given
4. $\overline{HK} \cong \overline{HK}$	4. Reflexive POC
5. $\triangle IHK \cong \triangle JHK$	5. Corr SAS of 2 Δ s $\cong \rightarrow \Delta$ s are \cong
6. $\overline{IK} \cong \overline{JK}$	6. CPCTC
7. \overline{HK} bisects \overline{IJ}	7. Segment divides segment into 2 \cong segments \rightarrow it bisects the segment

Fill in the blanks to complete the proof below. **Mark the diagram first!**

2. Given: $\overline{CD} \cong \overline{CG}$
 $\overline{DE} \cong \overline{GF}$

Prove: $\overline{CE} \cong \overline{CF}$

SAS



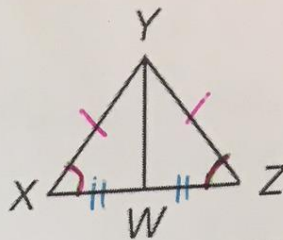
Statements	Reasons
1. $\overline{CD} \cong \overline{CG}$	1. Given
2. $\angle D \cong \angle G$	2. two sides of a Δ are $\cong \rightarrow$ \angle s opposite the sides are \cong
3. $\overline{DE} \cong \overline{GF}$	3. Given
4. $\triangle CDE \cong \triangle CGF$	4. Corresponding SAS of two Δ s $\cong \rightarrow \Delta$ s are \cong
5. $\overline{CE} \cong \overline{CF}$	5. CPCTC

For each exercise below, mark the diagram, then write a proof. You may or may not need all of the lines provided.

3. Given: $\overline{XY} \cong \overline{ZY}$ ← typo \overline{ZY}
 \overline{YW} bisects \overline{XZ}

Prove: \overline{YW} bisects $\angle XYZ$

SAS



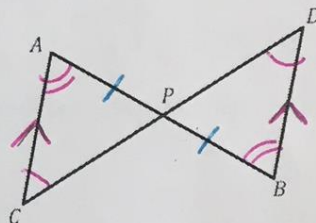
Statements	Reasons
1. $\overline{XY} \cong \overline{ZY}$	1. Given
2. $\angle X \cong \angle Z$	2. 2 sides of $\triangle \cong \rightarrow \angle$ s opposite the sides are \cong
3. \overline{YW} bisects \overline{XZ}	3. Given
4. $\overline{XW} \cong \overline{ZW}$	4. Segment bisects Segment $\rightarrow 2 \cong$ Segments
5. $\triangle XYW \cong \triangle ZYW$	5. Corr SAS of 2 \triangle s $\cong \rightarrow \triangle$ s are \cong
6. $\angle XYW \cong \angle ZYW$	6. CPCTC
7. \overline{YW} bisects $\angle XYZ$	7. Segment divides \angle into 2 \cong \angle s \rightarrow it bisects the \angle
8.	8.

4. Given: $\overline{AC} \parallel \overline{DB}$

P is the midpoint of \overline{AB}

Prove: P is the midpoint of \overline{CD}

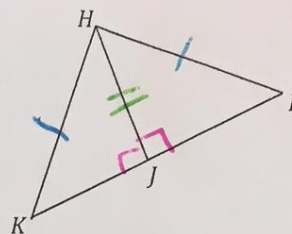
AAS



Statements	Reasons
1. $\overline{AC} \parallel \overline{DB}$	1. Given
2. $\angle A \cong \angle B, \angle C \cong \angle D$	2. 2 \parallel lines cut by transversal \rightarrow alt int \angle s \cong
3. P is midpoint of AB	3. Given
4. $\overline{AP} \cong \overline{BP}$	4. midpoint of segment $\rightarrow 2 \cong$ segments
5. $\triangle APC \cong \triangle BPD$	5. Corr AAS of 2 \triangle s $\cong \rightarrow \triangle$ s are \cong
6. $\overline{CP} \cong \overline{DP}$	6. CPCTC
7. P is midpoint of \overline{CD}	7. Point divides segment into 2 \cong segments \rightarrow point is the midpoint

5. Given: $\overline{HI} \cong \overline{HK}$
 $\overline{HJ} \perp \overline{KI}$

HL



Prove: $\overline{KJ} \cong \overline{IJ}$

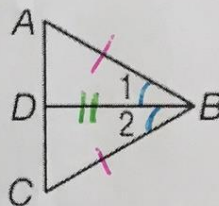
H

Statements	Reasons
1. $\overline{HI} \cong \overline{HK}$	1. Given
2. $\overline{HJ} \perp \overline{KI}$	2. Given
3. $\angle HJK$ & $\angle HJI$ are right \angle s	3. 2 lines are $\perp \rightarrow$ form 4 right \angle s
4. $\triangle HJK$ & $\triangle HJI$ are right \triangle s	4. \triangle has a right $\angle \rightarrow \triangle$ is a right \triangle
5. $\overline{HJ} \cong \overline{HJ}$	5. Reflexive POC
6. $\triangle HJK \cong \triangle HJI$	6. Corr HL of 2 right \triangle s $\cong \rightarrow \triangle$ s are \cong
7. $\overline{KJ} \cong \overline{IJ}$	7. CPCTC
8.	8.

L

6. Given: $\triangle ABC$ is equilateral
 $\angle 1 \cong \angle 2$

SAS



Prove: $\angle ADB \cong \angle CDB$

S

A

S

Statements	Reasons
1. $\triangle ABC$ is equilateral	1. Given
2. $\overline{AB} \cong \overline{CB}$	2. \triangle is equilateral \rightarrow all sides \cong
3. $\angle 1 \cong \angle 2$	3. Given
4. $\overline{DB} \cong \overline{DB}$	4. Reflexive POC
5. $\triangle ABD \cong \triangle CBD$	5. Corr SAS of 2 \triangle s $\cong \rightarrow \triangle$ s are \cong
6. $\angle ADB \cong \angle CDB$	6. CPCTC
7.	7.

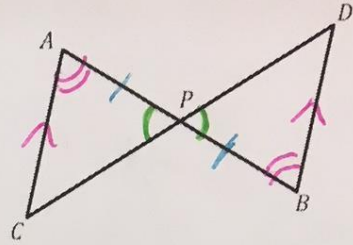
Alternate Method for #4

4. Given: $\overline{AC} \parallel \overline{DB}$

P is the midpoint of \overline{AB}

Prove: P is the midpoint of \overline{CD}

ASA

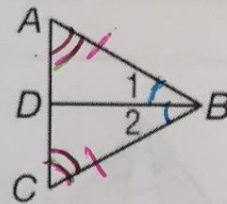


Statements	Reasons
1. $AC \parallel DB$	1. Given
A 2. $\angle A \cong \angle B$	2. 2 \parallel lines cut by transversal \rightarrow alt int \angle s are \cong
3. P is midpoint of \overline{AB}	3. Given
S 4. $\overline{AP} \cong \overline{BP}$	4. Midpoint of segment \rightarrow 2 \cong segments
5. $\angle APC$ & $\angle BPD$ are vertical	5. Given by diagram
A 6. $\angle APC \cong \angle BPD$	6. 2 vertical \angle s \rightarrow 2 \cong \angle s
7. $\triangle APC \cong \triangle BPD$	7. Corr ASA of 2 \triangle s \cong \rightarrow \triangle s are \cong
8. $\overline{CP} \cong \overline{DP}$	8. CPCTC
9. P is midpoint of \overline{CD}	9. If point divides segment into 2 \cong segments \rightarrow point is the midpoint

Alternate Method for #6

6. Given: $\triangle ABC$ is equilateral
 $\angle 1 \cong \angle 2$

ASA



Statements	Reasons
1. $\triangle ABC$ is equilateral	1. Given
S 2. $\overline{AB} \cong \overline{CB}$	2. \triangle is equilateral \rightarrow all sides \cong
A 3. $\angle A \cong \angle C$	3. \triangle has 2 \cong sides \rightarrow \angle s opposite the sides are \cong
A 4. $\angle 1 \cong \angle 2$	4. Given
5. $\triangle ABD \cong \triangle CBD$	5. Corr ASA of 2 \triangle s \cong \rightarrow \triangle s are \cong
6. $\angle ADB \cong \angle CDB$	6. CPCTC
7.	7.