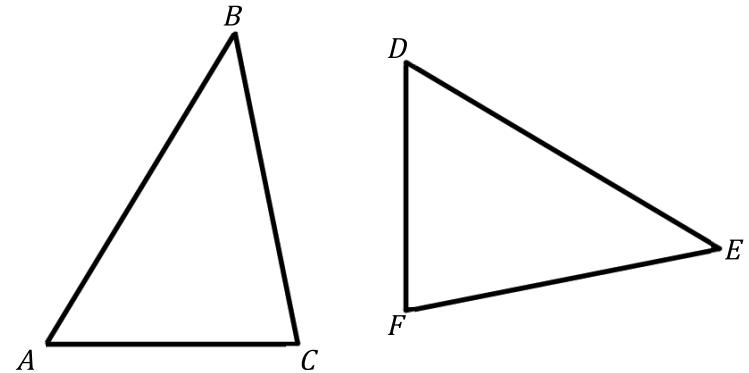


Section 7 – Topic 6
More Triangle Proofs

Consider the figures below with $\triangle ABC \cong \triangle DEF$.



List the congruency statements about these triangles.

Now, consider the following theorem.

TAKE NOTE!
Postulates &
Theorems

CPCTC

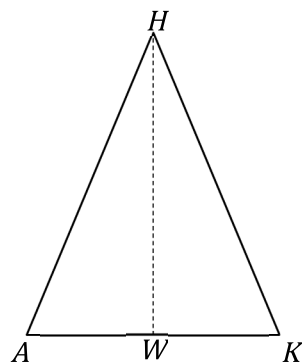
Corresponding parts of congruent triangles are congruent.

When given a congruence statement about two triangles, how can you use CPCTC?

We can use CPCTC to justify a congruence statement of angles or sides when two triangles are proven congruent.

Let's Practice

1. Consider the diagram to the right.



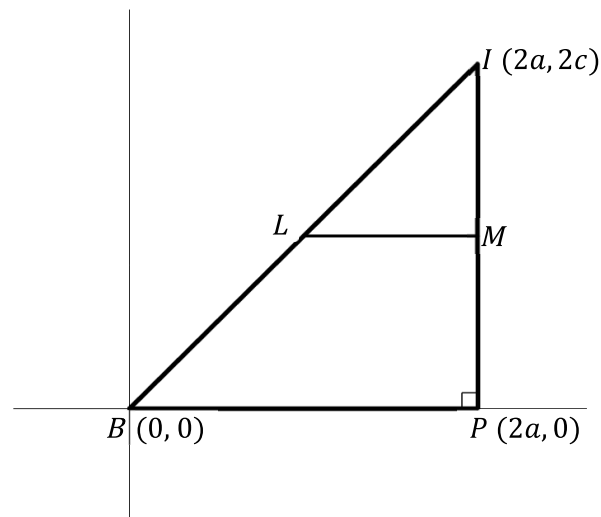
Given: $\overline{AH} \cong \overline{KH}$; \overline{HW} bisects $\angle AHK$

Prove: $\angle A \cong \angle K$

Based on the above figure and the information below, complete the following two-column proof.

Statements	Reasons
1. $\overline{AH} \cong \overline{HK}$	1.
2. \overline{HW} bisects $\angle AHK$	2.
3. $\angle AHW \cong \angle KHW$	3.
4. $\overline{HW} \cong \overline{HW}$	4.
5. $\triangle AHW \cong \triangle KHW$	5.
6. $\angle A \cong \angle K$	6.

2. Consider the figure below.

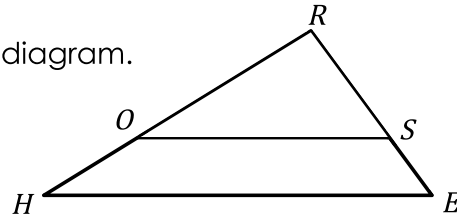


The above figure shows $\triangle BIP$ where L is the midpoint of \overline{BI} and M is the midpoint of \overline{IP} .

Prove that $\overline{LM} \parallel \overline{BP}$ and $LM = \frac{1}{2}BP$.

Try It!

3. Consider the following diagram.



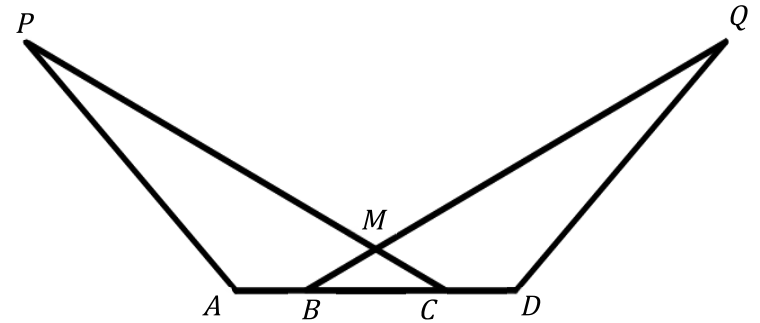
Given: $\frac{OH}{OR} = \frac{SE}{SR}$

Prove: $\overline{OS} \parallel \overline{EH}$

Complete the following two-column proof.

Statements	Reasons
1. $\frac{OH}{OR} = \frac{SE}{SR}$	1.
2. $1 + \frac{OH}{OR} = 1 + \frac{SE}{SR}$	2.
3. $\frac{OR}{OR} + \frac{OH}{OR} = \frac{SR}{SR} + \frac{SE}{SR}$	3. Substitution
4. $\frac{OR + OH}{OR} = \frac{SR + SE}{SR}$	4. Substitution
5. $\frac{HR}{OR} = \frac{RE}{SR}$	5. Segment Addition Postulate
6. $\angle R \cong \angle R$	6.
7. $\triangle ORS \sim \triangle HRE$	7.
8. $\angle ROS \cong \angle H, \angle RSO \cong \angle E$	8.
9. $\overline{OS} \parallel \overline{EH}$	9.

4. Consider the figure below.



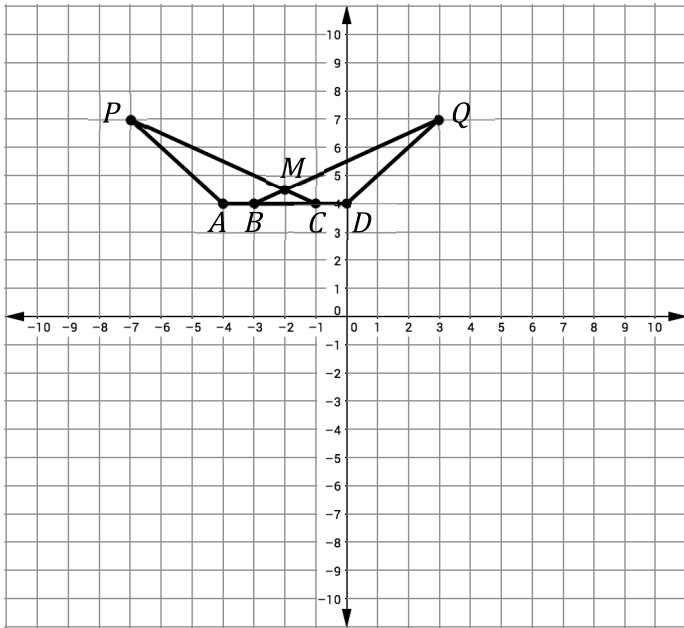
Given: $m\angle A = m\angle D, \overline{AP} \cong \overline{DQ}, \overline{AB} \cong \overline{BC} \cong \overline{CD}$

Prove: $\overline{BM} \cong \overline{CM}$

Complete the following two-column proof.

Statements	Reasons
1. $m\angle A = m\angle D$	1. Given
2. $\overline{AP} \cong \overline{DQ}, \overline{AB} \cong \overline{BC} \cong \overline{CD}$	2. Given
3.	3. Segment Addition Postulate
4. $AB + BC = DB$	4.
5.	5. Transitive Property
6. $\triangle CAP \cong \triangle BDQ$	6.
7.	7. CPCTC
8. $\overline{BM} \cong \overline{CM}$	8.

5. Consider the figure again but on a coordinate plane.



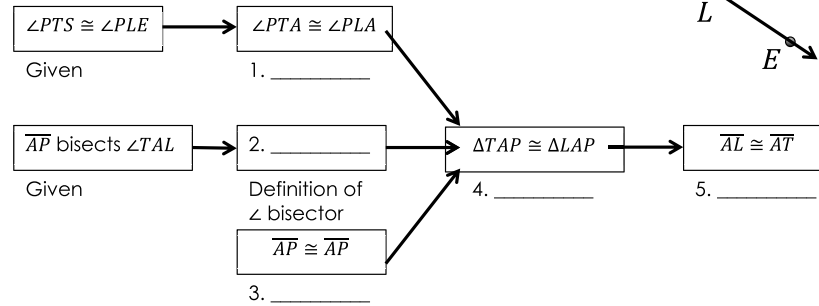
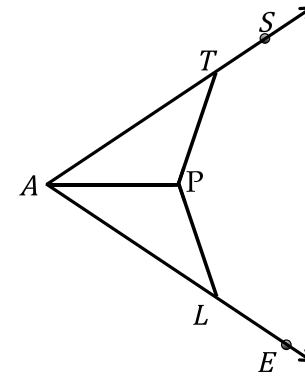
Prove $\overline{BM} \cong \overline{CM}$ by applying properties of transformations. Justify your steps.

BEAT THE TEST!

1. Consider the diagram and flow-proof below.

Given: $\angle PTS \cong \angle PLE$
 \overline{AP} bisects $\angle TAL$

Prove: $\overline{AL} \cong \overline{AT}$



Use the choices below to complete the flow-proof.

- A. $\angle TAP \cong \angle LAP$
- B. CPCTC
- C. AAS
- D. Congruent supplements theorem
- E. Reflexive property

