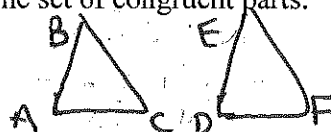


Things to remember when working with triangles

1. Mark any given information on your diagram.
2. Look to see if the pieces you need are "parts" of the triangles that can be proven congruent.
3. If not given all needed pieces to prove the triangles congruent, look to see what else you might know about the diagram.
4. Know your definitions! If the given information contains definitions, consider these as "hints" to the solution and be sure to use them.
5. Stay open-minded. There may be more than one way to solve a problem.
6. Look to see if your triangles "share" parts. These common parts are automatically one set of congruent parts.

CPCTC



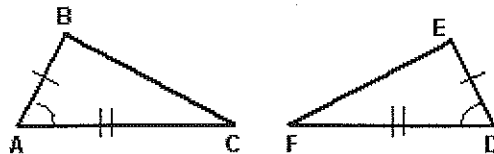
$\triangle ABC \cong \triangle DEF$

Then: $\angle A \cong \angle D$
 $\angle B \cong \angle E$
 $\angle C \cong \angle F$

$\overline{AB} \cong \overline{DE}$
 $\overline{BC} \cong \overline{EF}$
 $\overline{AC} \cong \overline{DF}$

Prove the triangles are congruent for the following examples

Example 1:



Given: $\overline{AB} \cong \overline{DE}$

$\overline{AC} \cong \overline{DF}$

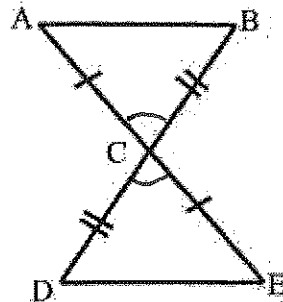
$\angle A \cong \angle D$

Prove: $\triangle BAC \cong \triangle EDF$

Conclusions	Reasons
$\overline{AB} \cong \overline{DE}$	Given
$\overline{AC} \cong \overline{DF}$	Given
$\angle A \cong \angle D$	Given
$\triangle BAC \cong \triangle EDF$	SAS

Example 2:

In this example problem, examine the given information, mark the given information on the diagram as in the first tip, and decide if congruent triangles will help you solve this problem.



Given: $\overline{AE} \cong \overline{BD}$

$\overline{AC} \cong \overline{EC}$

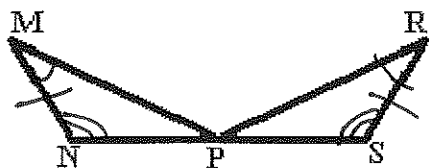
$\overline{BC} \cong \overline{DC}$

Prove: $\triangle ABC \cong \triangle EDC$

Conclusions	Reasons
$\overline{AC} \cong \overline{EC}$	Given
$\overline{BC} \cong \overline{DC}$	Given
$\angle ACB \cong \angle ECD$	vertical \angle s are \cong
$\triangle ABC \cong \triangle EDC$	SAS

CPCTC

Example 3:



Given: $\angle M \cong \angle R$

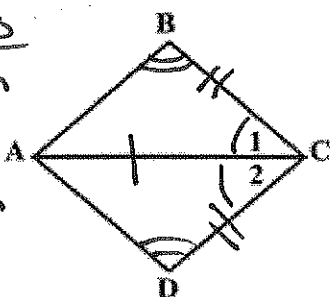
$\angle N \cong \angle S$

$\overline{MN} \cong \overline{RS}$

Prove: $\overline{MP} \cong \overline{RP}$

Conclusions	Reasons
$\angle M \cong \angle R$	Given
$\angle N \cong \angle S$	Given
$\overline{MN} \cong \overline{RS}$	Given
$\triangle MNP \cong \triangle RSP$	ASA
$\overline{MP} \cong \overline{RP}$	CPCTC

Example 4:



Given: \overline{AC} bisects $\angle BCD$

$\overline{BC} \cong \overline{DC}$

$\angle B \cong \angle D$

Prove: $\triangle ABC \cong \triangle ADC$

Conclusions	Reasons
\overline{AC} bisects $\angle BCD$	Given
$\overline{BC} \cong \overline{DC}$	Given
$\angle B \cong \angle D$	Given
$\triangle ABC \cong \triangle ADC$	ASA

CPCTC is a short hand acronym for the phrase, "Corresponding Parts of Congruent Triangles are Congruent"

Remember the meaning of congruent triangles. Two triangles are congruent if all 3 sides and 3 angles of one triangle equal all 3 sides and all 3 angles of the other triangle. CPCTC takes advantage of this fact. The general method is to first prove that 2 triangles are congruent and then use that knowledge to prove that a certain pair of corresponding sides or angles are congruent.

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Example 5:

$\angle E \cong \angle W$
 M is the midpoint
 of \overline{WE} .
 Is $\overline{MO} \cong \overline{MN}$? Why?

ASA

