<name>
Class: Honors Geometry
Date: 9/14/06
Topic: Lesson 4-7 (Using Corresponding Parts of Congruent Triangles)

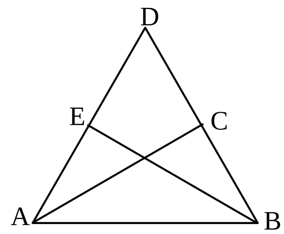
Overlapped Δs

1. Separate, redraw and relabeled
2. Common side or $\angle$ is $\cong$ to itself by reflex. POC.
3. Prove 1 pair of $\Delta s \cong$ & use CPCTC to prove another pair $\cong$

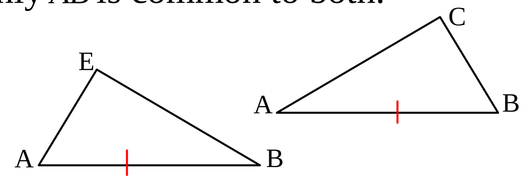
Examples

<u>Pg 227</u>
Separate & redraw. Identify any common $\angle' s$ or sides.

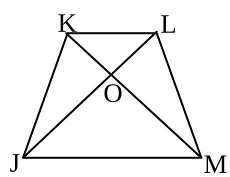
7. ΔABE & ΔBAC



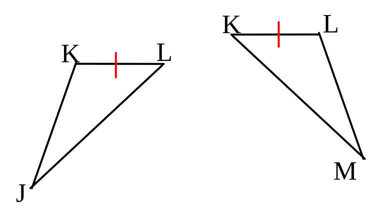
Only $\overline{AB}$ is common to both.



8. ΔJKL & ΔMLK



Only $\overline{KL}$ is common to both.



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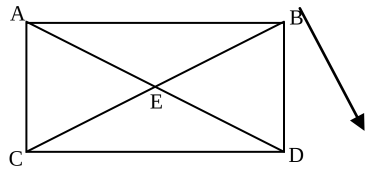
Pg 225, Check Understanding 2

Plan and write a proof.

Given: $\Delta ACD \cong \Delta BDC$

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

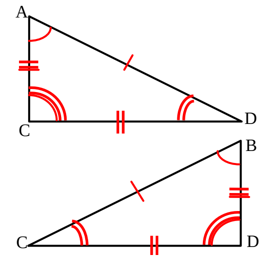


Plan:

1) Separate, redraw & label the $\cong$ Δs.

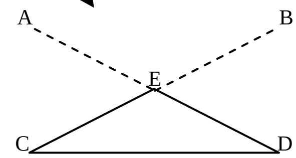
2) Id corr. (& $\cong$) parts.

$\angle CAD \cong \angle DBC$, $\angle ADC \cong \angle BCD$,
$\angle ACD \cong \angle BDC$,
$\overline{AC} \cong \overline{BD}$, $\overline{AD} \cong \overline{BC}$, $\overline{CD} \cong \overline{CD}$



3) Next notice $\overline{CE}$ & $\overline{DE}$ are sides of ΔCED…redraw & label ΔCED.

4) Notice $\angle C$ (of ΔCED) is part of $\angle BCD$ and that $\angle D$ (of ΔCED) is part of $\angle ADC$ so $\angle C \cong \angle D$ which makes ΔCED an isosceles triangle.



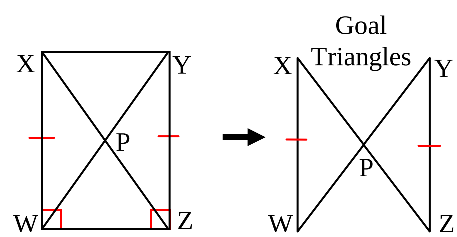
Proof: $\Delta ACD \cong \Delta BDC$	Given
$\angle ADC \cong \angle BCD$	CPCTC
Pt E is on $\overline{AD}$ & $\overline{BC}$	Given
$\overline{CE} \cong \overline{DE}$	If 2 $\angle$'s $\cong$ then opposite sides are $\cong$.

Not in book

Given: $\overline{XW} \cong \overline{YZ}$

$\angle XWZ$ & $\angle YZW$ are rt $\angle$'s

Prove: $\Delta XPW \cong \Delta YPZ$



Plan: Separate, redraw & label:

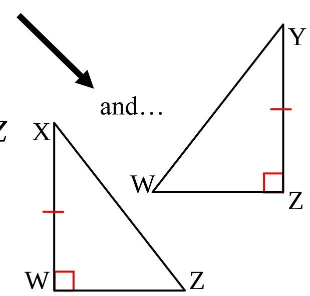
…goal Δs:

Notice vert $\angle$'s $\angle XPW$ & $\angle YPZ$

…& other helpful Δ pairs:

Notice $\Delta XWZ \cong \Delta YZW$ (SAS: $\overline{WZ} \cong \overline{WZ}$)

We can use CPCTC to say $\angle WXZ \cong \angle WYZ$



Proof: $\overline{XW} \cong \overline{YZ}$	Given
$\angle XWZ \cong \angle YZW$	All rt. $\angle$'s $\cong$

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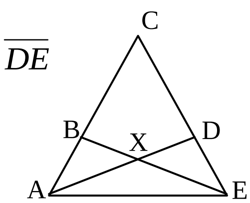
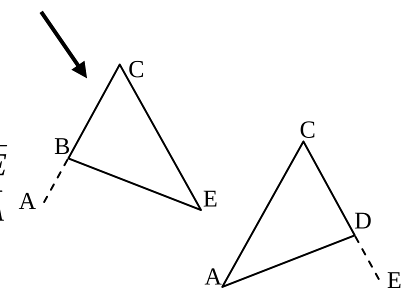
$\overline{WZ} \cong \overline{WZ}$	Reflexive POC
$\Delta XWZ \cong \Delta YZW$	SAS
$\angle WXZ \cong \angle ZYW$	CPCTC
$\angle XPW \cong \angle YPZ$	Vert. $\angle 's \cong$
$\overline{XW} \cong \overline{YZ}$	Given
$\Delta XPW \cong \Delta YPZ$	AAS

<u>Not in the book</u>

Given: $\overline{CA} \cong \overline{CE}$ & $\overline{BA} \cong \overline{DE}$
Prove: $\angle CBE \cong \angle CDA$



Plan: Separate, redraw & label:
…goal triangles:



Shared $\angle C$ & given $\overline{CA} \cong \overline{CE}$
Also notice $\overline{BA}$ is part of $\overline{CA}$
and $\overline{DE}$ is part of $\overline{CE}$

Proof:

$CA = CB + BA$	$\angle$ Add. Post.
$CE = CD + DE$	$\angle$ Add. Post.
$CA = CE$	Given
$CB + BA = CD + DE$	Subst POE
$BA = DE$	Given
$CB + DE = CD + DE$	Subst POE
$CB = CD, \overline{CB} \cong \overline{CD}$	Subtr POE
$\angle C \cong \angle C$	Reflexive POC
$\overline{CA} \cong \overline{CE}$	Given
$\Delta CDA \cong \Delta CBE$	SAS
$\angle CDA \cong \angle CBE$	CPCTC