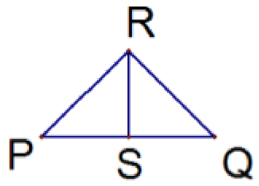
pg 178 (7)

7. *Given:* In $\triangle PQR$, $\overline{PR} \cong \overline{QR}$, $\angle P \cong \angle Q$, and $\overline{RS}$ is a median.

Prove: $\triangle PSR \cong \triangle QSR$



CPCTC

Agenda:
1)Review HW
pg 178 (7) & Wksht (1,2)

2)CPCTC example
3)Practice Proof #1
4)CPCTC w/Addition
5)Practice Proof #2
HW) pg 180 (6-10, 12-14)

given → $\overline{RS}$ is a median. → S is the midpoint of $\overline{PQ}$ → $\overline{PS} \cong \overline{QS}$ → $\triangle PSR \cong \triangle QSR$

a median joins the vertex of a triangle to the midpoint of the opposite side

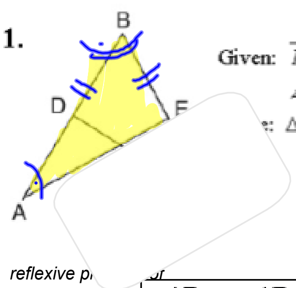
a midpoint divides a segment into two congruent segments

given → $\angle P \cong \angle Q$ → $\triangle PSR \cong \triangle QSR$

given → $\overline{PR} \cong \overline{QR}$ → $\triangle PSR \cong \triangle QSR$

$SAS \cong SAS$

1.



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

$\measuredangle A \cong \measuredangle C$

…e: $\triangle ABE \cong \triangle CBD$

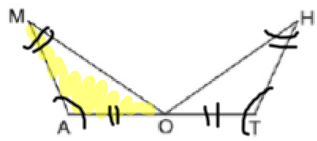
reflexive p… …of congruence → $\angle B \cong \angle B$ → $\triangle ABE \cong \triangle CBD$

given → $\measuredangle A \cong \measuredangle C$ → $\triangle ABE \cong \triangle CBD$

given → $\overline{BD} \cong \overline{BE}$ → $\triangle ABE \cong \triangle CBD$

$AAS \cong AAS$

2.



Given: O midpoint of $\overline{AT}$

$\measuredangle A \cong \measuredangle T$; $\measuredangle M \cong \measuredangle H$

Prove: $\triangle MAO \cong \triangle HTO$

given → $\measuredangle A \cong \measuredangle T$; → $\triangle MAO \cong \triangle HTO$

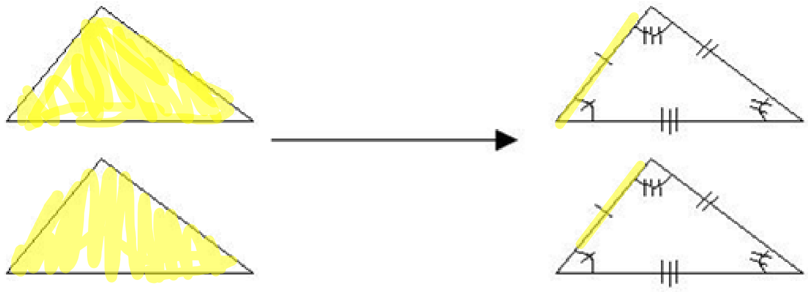
given → $\measuredangle M \cong \measuredangle H$ → $\triangle MAO \cong \triangle HTO$

given → O midpoint of $\overline{AT}$ → $\overline{AO} \cong \overline{OT}$ → $\triangle MAO \cong \triangle HTO$

a midpoint divides a segment into two congruent segments

$AAS \cong AAS$

Congruent Triangles

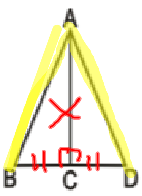


If two triangles are congruent, then all corresponding parts are congruent. This rule is called "corresponding parts of congruent triangles are congruent" and is abbreviated CPCTC. Don't panic - it's not as complicated as it looks. Let's look at what CPCTC actually means:

Given:

$\overline{AC}$ is the perpendicular bisector of $\overline{BD}$

Prove: $\overline{AB} \cong \overline{AD}$



$\overline{AC}$ bisects $\overline{BD}$
given

$\overline{BC} \cong \overline{DC}$
A bisector cuts a segment into two congruent segments

$\overline{AC} \perp \overline{BD}$
given

$\angle ACB$, $\angle ACD$ are rt angles
perpendicular lines form right angles

$\angle ACB \cong \angle ACD$
All right angles are congruent

$\overline{AC} \cong \overline{AC}$
Reflexive property of congruence

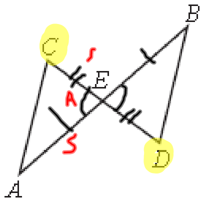
$\triangle ABC \cong \triangle ADC$
SAS ≅ SAS

$\overline{AB} \cong \overline{AD}$
CPCTC

Practice Proof #1 pg 180 #11

11. *Given:* $\overline{AEB}$ and $\overline{CED}$ bisect each other.

Prove: $\angle C \cong \angle D$



given → $\overline{AEB}$ and $\overline{CED}$ bisect each other.

a bisector divides a segment into two congruent segments → $\overline{CE} \cong \overline{DE}$, $\overline{AE} \cong \overline{BE}$

S

S

vertical angles are congruent → $\angle CEA \cong \angle DEB$

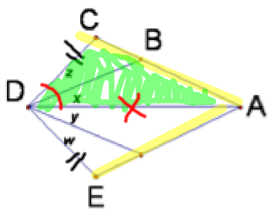
A

$\triangle CEA \cong \triangle DEB$

$SAS \cong SAS$

→ $\angle C \cong \angle D$

CPCTC



Given: DC = DE
<x ≅ <y
<z ≅ <w
Prove: AE ≅ AC

DC = DE
given

< z ≅ <w
< x ≅ <y
given

m<z + m<x =
m<w + m<y
Addition postulate

m<CDA = m<EDA
Substitution postulate

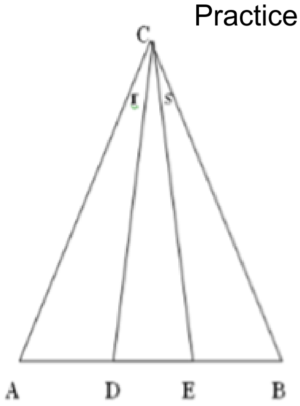
m<z + m<x = m<CDA
m<w + m<y = m<EDA
W = SOP

AD ≅ AD
Reflexive Property of Congruence

△CDA ≅ △EDA
SAS ≅ SAS

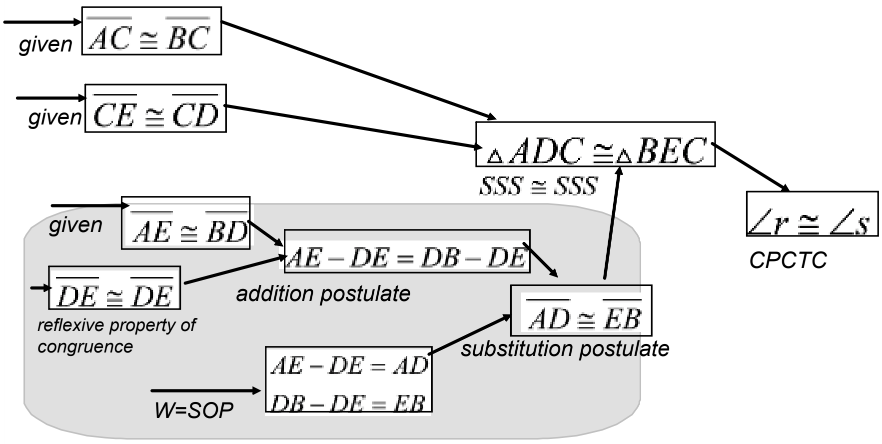
AE ≅ AC
CPCTC

Practice Proof #2



Given: $\overline{AC} \cong \overline{BC}$
$\overline{CE} \cong \overline{CD}$
$\overline{AE} \cong \overline{BD}$

Prove: $\angle r \cong \angle s$

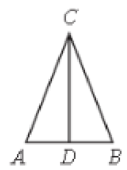


HW: pg 180 (6-10, 12-14)

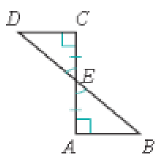
In 3-8, the figures have been marked to indicate pairs of congruent angles and pairs of congruent segments.
a. In each figure, name two triangles that are congruent.
b. State the reason why the triangles are congruent.
c. For each pair of triangles, name three additional pairs of parts that are congruent because they are corresponding parts of congruent triangles.

9. *Given:* $\overline{CA} \cong \overline{CB}$ and D is the midpoint of $\overline{AB}$.

Prove: $\angle A \cong \angle B$



6.



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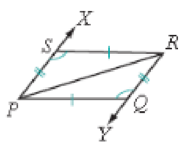

8.