BE - Geometry 1 | Monday 10-24-11

ACT practice

① $f(x) = -8x^2$ $f(-3) = ?$

② In $\triangle ABC$ the sum of the measures of $\angle A$ and $\angle B$ is $79°$. What is the $m\angle C$?

③ An automobile can be ordered in 6 different exterior colors, 3 different interior colors, and in either 2-door or 4-door models. How many different car combinations are there?

---

① $f(x) = -8x^2$

$f(-3) = -8(-3)^2$

$= -8(9)$

$= \boxed{-72}$

② $\boxed{101°}$

③ $6 \cdot 3 \cdot 2$

$= \boxed{36}$

FCP
Fundamental Counting Principle.

Proving $\triangle$'s $\cong$, "tools" you can use:

Ch. 4-4 $\Rightarrow$ SSS, SAS

Ch 4-5 $\Rightarrow$ ASA, AAS

"Tools" you can't use, they don't work:

$\Rightarrow$ AAA — they do prove $\triangle$'s similar however WHICH means the sides are in proportion.

$\Rightarrow$ SSA

Are these the only S, A, tools?

3 sides $\Rightarrow$ $\boxed{2}_{\text{S or A}} \cdot \boxed{2}_{\text{S or A}} \cdot \boxed{2}_{\text{S or A}} = 8$

FCP = Fundamental Counting Principle

Unique
SSS,AAA
ASA,SAS
Duplicates
SSA&A**
AAS&SAA

Important! SSS $\cong$ SSS

SAS $\cong$ SAS

ASA $\cong$ ASA

AAS $\cong$ AAS

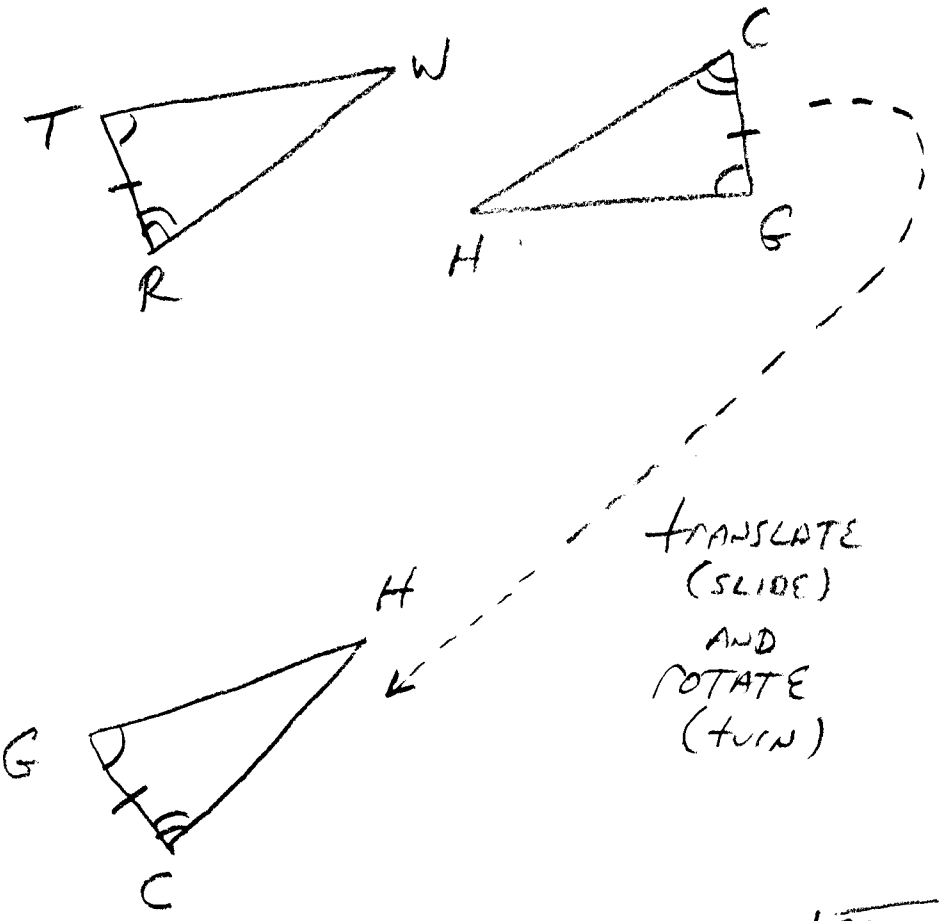
SIDES AND ANGLES MUST CORRESPOND!!

Also, SSS or SAS or ASA, or AAS are the Reason 2 $\triangle$'s are $\cong$. The reflexive property is for **1** side or angle.

ASA ⇒ If 2 ANGLES AND the INCLUDED (IN between) SIDE ARE ≅ to the corresponding 2 ANGLES AND SIDE IN ANOTHER △, the △'S ARE ≅.

POSTULATE 4.3 (PG 207)

(EX)



TRANSLATE (SLIDE) AND ROTATE (TURN)

CPCTC

△RTW ≅ △CGH

or △TWR ≅ △GHC

or △WRT ≅ △HCG

- ∠T ≅ ∠G
- ∠R ≅ ∠C
- ∠W ≅ ∠H

} 3 ∠s

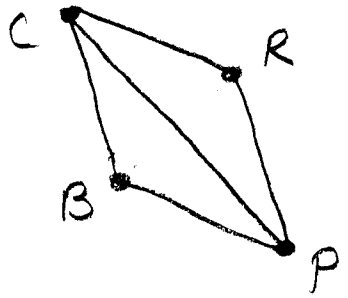
- $\overline{TW} \cong \overline{GH}$
- $\overline{TR} \cong \overline{GC}$
- $\overline{RW} \cong \overline{CH}$

} 3 Sides

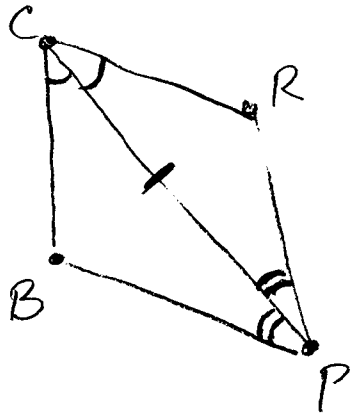
Ex 1 Pg 208

GIVEN: $\overline{CP}$ bisects $\angle BCR$ AND $\angle BPR$

PROVE: $\triangle BCP \cong \triangle RCP$



LABEL drawing AND MAKE PLAN TO PROVE $\triangle$'S $\cong$

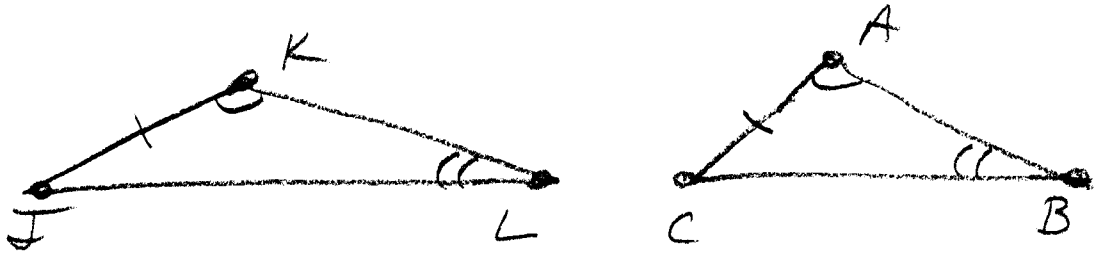


STATEMENT	REASON
$\angle BCP \cong \angle RCP$ AND $\angle CPB \cong \angle CPR$	Given, def. of bisects
$\overline{CP} \cong \overline{CP}$	Reflexive Property
$\triangle BCP \cong RCP$	ASA

AAS ⇒ If two ∠s and a NON-INCLUDED side of a △ are ≅ to two corresponding ∠s and NON-included side, then the 2 △'s are ≅.

POSTULATE
(Theorem 4-5)
Pg 208

(EX)



△JKL ≅ △CAB

WHY THEOREM? BECAUSE 2 ∠s GET YOU 3 AND ASA IS A POSTULATE

Tip: If two △'s share parts, it may help to draw the △'s "pulled" apart to make sure you see the CPCTC relationships correctly.

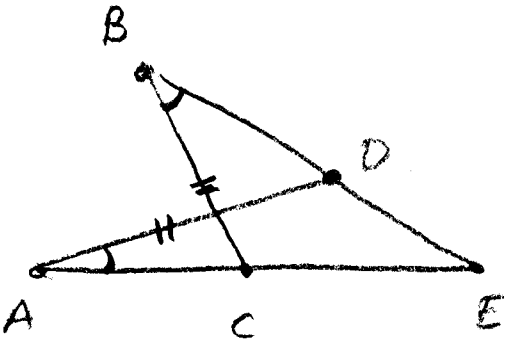
Ex 2 Pg. 209

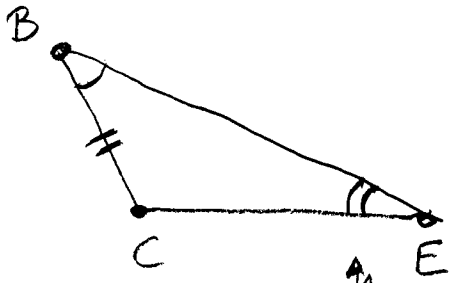
Given:

$\angle EAD \cong \angle EBC$

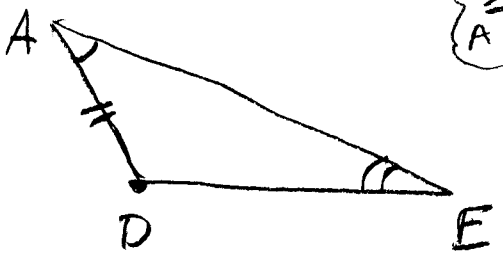
$\overline{AD} \cong \overline{BC}$

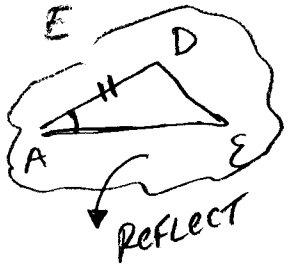
Prove: $\overline{AE} \cong \overline{BE}$





Reflexive





STATEMENT	REASON
$\angle EAD \cong \angle EBC$	Given
$\overline{AD} \cong \overline{BC}$	Given
$\angle E \cong \angle E$	Reflexive
$\triangle CBE \cong \triangle DAE$	AAS
$\overline{AE} \cong \overline{BE}$	CPCTC

Summary: SSS, SAS, AAS, ASA

Can't use AAA, SSA

Homework: ① Memorize the 4 $\triangle$ Congruence methods

② Pg. 210 # 6 and 7.