Geometry CC – Unit 5

Lesson 7: Triangle Congruence Proofs (CPCTC)

Do now:
Reflect on the past few weeks.
What have you learned so far about triangle proofs?

SSS
ASA
SAS
HL
AAS

Donkey thm
Vertical ∠'s
Reflexive Prop
Statements & Reasons

Nov 13-2:30 PM

TRIANGLE PROOFS & CPCTC

What is CPCTC? Stands for: Corresponding Parts of Congruent Triangles are Congruent

Use when asked to prove Parts are Congruent
**But first, you must prove the Triangles are Congruent

CPCTC

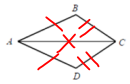
$\triangle ABC \cong \triangle DEF$

*once we prove △'s ≅, we can say that their corresponding Parts are ≅.

Nov 28-10:19 AM

EXAMPLES WITH CPCTC:

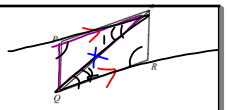
1. **Given:** $\overline{AB} \cong \overline{AD}$, $\overline{BC} \cong \overline{CD}$
Prove: $\angle BCA \cong \angle DCA$



Statement	Reason
1) $\overline{AB} \cong \overline{AD}$,	1) Given
2) $\overline{BC} \cong \overline{CD}$	2) Given
3) $\overline{AC} \cong \overline{AC}$	3) Reflexive Property
4) $\Delta ABC \cong \Delta ADC$	4) $SSS \cong SSS$
5) $\angle BCA \cong \angle DCA$	5) $CPCTC$

Nov 13-2:31 PM

2. **Given:** $\overline{PS} \parallel \overline{QR}$, $\angle QPS \cong \angle SRQ$
Prove: $\overline{PQ} \cong \overline{RS}$

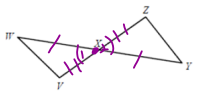


Statement	Reason
1) $\overline{PS} \parallel \overline{QR}$,	1) Given
2) $\angle QPS \cong \angle SRQ$	2) Given
3) $\angle 1 \cong \angle 2$	3) *If 2 ∥ lines are cut by a tran. then a pair of ≅ alt. int. ∠'s are formed.*
4) $\overline{QS} \cong \overline{QS}$	4) Reflexive Property
5) $\Delta QPS \cong \Delta SRQ$	5) $AAS \cong AAS$
6) $\overline{PQ} \cong \overline{RS}$	6) $CPCTC$

Remember....

Nov 13-2:31 PM

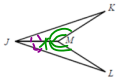
3. **Given:** X is the midpoint of $\overline{WY}$ and $\overline{VZ}$
Prove: $\angle XWV \cong \angle XYZ$



Statement	Reason
1) X is the midpoint of $\overline{WY}$ and $\overline{VZ}$	1) Given
2) $\overline{WX} \cong \overline{YX}$	2) Def. of Midpoint
3) $\overline{ZX} \cong \overline{VX}$	3) Def. of Midpoint
4) $\angle 1 \cong \angle 2$	4) Vertical angles are congruent
5) $\Delta WXV \cong \Delta YXZ$	5) $SAS \cong SAS$
6) $\angle XWV \cong \angle XYZ$	6) $CPCTC$

Nov 13-2:31 PM

4. **Given:** $\overline{JM}$ bisects $\angle KJL$, $\angle JMK \cong JML$
Prove: $\overline{JK} \cong \overline{JL}$



Statement	Reason
1) $\overline{JM}$ bisects $\angle KJL$	1) Given
2) $\angle JMK \cong JML$	2) Given
3) $\angle 1 \cong \angle 2$	3) Def. of an angle bisector
4) $\overline{JM} \cong \overline{JM}$	4) Reflexive Property
5) $\Delta JKM \cong \Delta JLM$	5) $ASA \cong ASA$
6) $\overline{JK} \cong \overline{JL}$	6) $CPCTC$

Nov 13-2:31 PM

Exit Ticket !!!!

Directions: Complete the proof at the top the page. Show all work!

Yes, this will be collected :-)

If you finish the proof, try to solve it using a different triangle congruence theorem.

Nov 28-10:57 AM