

# Video explanation on GC

Name Key Date \_\_\_\_\_ Pd \_\_\_\_\_

## CYU 2.5 Geometric Reasoning DAY ONE

Use when you get it right all by yourself

**S** Use when you did it all by yourself, but made a silly mistake

**H** Use when you could do it alone with a little help from teacher or peer

**G** Use when you completed the problem in a group

**X** Use when a question was attempted but wrong (get help)

**N** Use when a question was not even attempted

CONCEPTS	BASIC	INTERMEDIATE	ADVANCED
Addition/Subtraction POE/POC	1		
Multiplication/Division POE/POC			
Substitution POE	4		
Distributive Property			
Reflexive POE/POC	3		
Symmetric POE/POC	3		
Transitive POE/POC	1, 3, 6	5, 6	6
Def. of Complementary/Supplementary Angles	4	2	
Def. of Complement/Supplement		2	
Def. of Congruent Angles	4		
Def. of Linear Angles	4		
Def. of Segment Bisector		5	

1. Complete the proof.

Given  $PQ = RS$

Prove  $PR = QS$



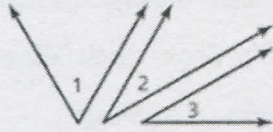
STATEMENTS	REASONS
1. $PQ = RS$	1. <u>Given</u>
2. $PQ + QR = RS + QR$	2. <u>Add. POE</u>
3. <u><math>PQ + QR = PR</math></u>	3. Segment Addition Postulate (Post. 1.2)
4. $RS + QR = QS$	4. Segment Addition Postulate (Post. 1.2)
5. $PR = QS$	5. <u>Transitive POE</u>



2. Complete the proof.

Given  $\angle 1$  is a complement of  $\angle 2$ .  
 $\angle 2 \cong \angle 3$

Prove  $\angle 1$  is a complement of  $\angle 3$ .



STATEMENTS

1.  $\angle 1$  is a complement of  $\angle 2$ .
2.  $\angle 2 \cong \angle 3$
3.  $m\angle 1 + m\angle 2 = 90^\circ$
4.  $m\angle 2 = m\angle 3$
5.  $m\angle 1 + m\angle 3 = 90^\circ$
6.  $\angle 1$  is a complement of  $\angle 3$ .

REASONS

1. Given
2. Given
3. Def of complementary  $\angle$ 's
4. Definition of congruent angles
5. Substitution Property of Equality
6. Def of complement

3. Name the property that the statement illustrates.

a. If  $\overline{PQ} \cong \overline{ST}$  and  $\overline{ST} \cong \overline{UV}$ , then  $\overline{PQ} \cong \overline{UV}$ .

b.  $\angle F \cong \angle F$

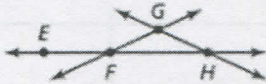
c. If  $\overline{XY} \cong \overline{UV}$ , then  $\overline{UV} \cong \overline{XY}$ .

Transitive POC (Segment)  
Reflexive POC (Angle)  
Symmetric POC (Segment)

4. Write a two-column proof on your own paper: T, statements, reasons, & numbers.

Given  $\angle GFH \cong \angle GHF$

Prove  $\angle EFG$  and  $\angle GHF$  are supplementary.

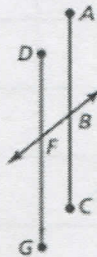


extra paper

5. Write a two-column proof on your own paper: T, statements, reasons, & numbers.

Given  $\overline{AB} \cong \overline{FG}$ ,  
 $\overline{BF}$  bisects  $\overline{AC}$  and  $\overline{DG}$ .

Prove  $\overline{BC} \cong \overline{DF}$

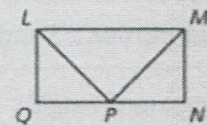


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6. In the diagram,  $\overline{MN} \cong \overline{LQ}$  and  $\overline{LQ} \cong \overline{PN}$ . Describe AND correct the error in the reasoning.

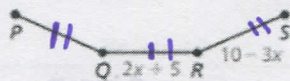
Transitive POC (segment)  
 $\overline{MN} \cong \overline{LQ} \ \& \ \overline{LQ} \cong \overline{PN} \Rightarrow \overline{MN} \cong \overline{PN}$

**X** Because  $\overline{MN} \cong \overline{LQ}$  and  $\overline{LQ} \cong \overline{PN}$ , then  $\overline{MN} \cong \overline{PN}$  by the Reflexive Property of Segment Congruence (Thm. 2.1).



7. Write a two-column proof on your own paper: T, statements, reasons, & numbers. Solve for x using the given information and justify each step.

Given  $\overline{QR} \cong \overline{PQ}$ ,  $\overline{RS} \cong \overline{PQ}$



Transitive POC (segment)

$\overline{QR} \cong \overline{RS}$

$2x + 5 = 10 - 3x$

$5x = 5$

$x = 1$

**CYU Reflection:** How far can you go: basic, intermediate, or advanced?

**Rate your mastery level!**

How confident are you with the skills this CYU covered? Circle the score you would give yourself.

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1	2	3	4	5	6	7	8
Basic		Intermediate			Advanced		Solved ALL!





4. Statements	Reasons
1. $\angle GFH \cong \angle GHF$	1. Given
2. $m\angle GFH \cong m\angle GHF$	2. If $\cong \Rightarrow =$ (Def. of $\cong$ #'s)
3. $\angle EFG$ & $\angle GFH$ form a linear pair	3. Given (diagram)
4. $\angle EFG$ & $\angle GFH$ are Supplementary	4. Def. of linear pair
5. $m\angle EFG + m\angle GFH = 180$	5. Def. of supplementary #'s
6. $m\angle EFG + m\angle GHF = 180$	6. Substitution POE
7. $\angle EFG$ & $\angle GHF$ are Supplementary	7. Def. of supplementary #'s

5. Statements	Reasons
1. $\overline{AB} \cong \overline{FG}$	1. Given
2. $\overleftrightarrow{BF}$ bisects $\overline{AC}$ & $\overline{DG}$	2. Given
3. $\overline{BC} \cong \overline{AB}$ ; $\overline{FG} \cong \overline{DF}$	3. Def. of segment bisector
4. $\overline{BC} \cong \overline{FG}$	4. Transitive POE
5. $\overline{BC} \cong \overline{DF}$	5. Transitive POE