Learning Target(s): I can use deductive reasoning to write a geometric proof (short, simple ones for now).

Notes: 2.6 Prove Statements about Segments and Angles

proof: a logical argument that shows a statement is true

two-column proof: has numbered statements and corresponding reasons that show an argument in logical order

Given:

Prove:

Statements	Reasons
1.	1.
2.	2.
⋮	⋮

Theorem 2.1 Congruence of Segments

Segment congruence is reflexive, symmetric, and transitive.

Reflexive For any segment AB, $\overline{AB} \cong \overline{AB}$.

Symmetric If $\overline{AB} \cong \overline{CD}$, then $\overline{CD} \cong \overline{AB}$.

Transitive If $\overline{AB} \cong \overline{CD}$ and $\overline{CD} \cong \overline{EF}$, then $\overline{AB} \cong \overline{EF}$.

Theorem 2.2 Congruence of Angles

Angle congruence is reflexive, symmetric, and transitive.

Reflexive For any angle A, $\angle A \cong \angle A$.

Symmetric If $\angle A \cong \angle B$, then $\angle B \cong \angle A$.

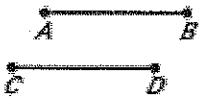
Transitive If $\angle A \cong \angle B$ and $\angle B \cong \angle C$, then $\angle A \cong \angle C$.

CONCEPT SUMMARY: WRITING A TWO-COLUMN PROOF

Proof of the Symmetric Property of Segment Congruence

Given $\overline{AB} \cong \overline{CD}$

Prove $\overline{CD} \cong \overline{AB}$



Copy or draw diagrams and label information to help develop proofs.

Statements based on that you know or conclusions from deductive reasoning →

Statements	Reasons
1. $\overline{AB} \cong \overline{CD}$	1. Given
2. AB = CD	2. If $\cong$, then $=$
3. CD = AB	3. Symmetric Property of Equality
4. $\overline{CD} \cong \overline{AB}$	4. If $=$, then $\cong$

↑ The number of statements will

↑ Remember to give a for the last statement.

that allow you to state the corresponding statement.

TIPS FOR PROOFS:

1. Use what you know!! What is **GIVEN** to us?? Draw it out on the picture.
2. Where are we going?? What are we trying to **PROVE**?
3. Start with the most obvious step first. Is there anything in common between the figures?
4. Work the proof out step-by-step, and draw it out as you go. It's not a race...take your time and don't give up!
5. DO YOUR BEST!!! There are many right ways to go about a problem.

Summary: Write what you learned today, and what you think you still need practice/help on.