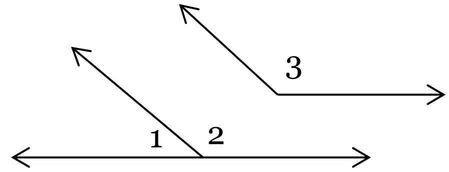
2.6
Day 2

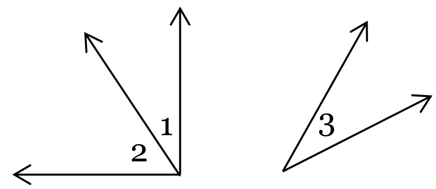
Drawing Conclusions and Proofs

Warm-Up! Transitive and Substitution



1: Given: $\angle 1$ is supplementary $\cancel{\angle 2}$ $\angle 3$
$\angle 2 \cong \angle 3$

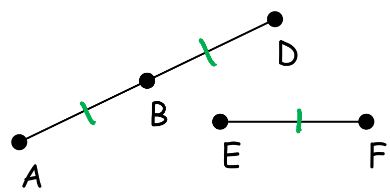
Conclusion: $\angle 1$ is supp $\angle 3$ Reason: Substitution Property



2: Given: $\angle 1 \cong \angle 3$
$\cancel{\angle 1}$ is comp. to $\angle 2$

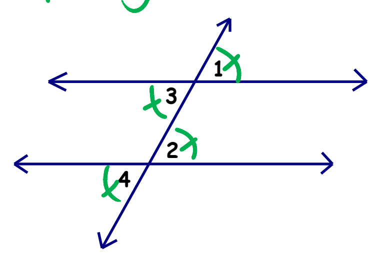
Conclusion: $\angle 3$ is comp to $\angle 2$ Reason: Substitution property

> **NOTE:** *When using the* ***SUBSTITUTION PROPERTY*** *the statement that corresponds with it will always be* ***NON-CONGURENT****!!!*



3: Given: $\overline{AB} \cong \overline{BD}$
$\overline{BD} \cong \overline{EF}$

Conclusion: $\overline{AB} \cong \overline{EF}$ Reason: Transitive Property



4: Given: $\angle 1 \cong \angle 3$
$\angle 2 \cong \angle 3$
$\angle 2 \cong \angle 4$

Conclusion: $\angle 1 \cong \angle 4$ Reason: Transitive Property

> **NOTE:** *When using the* ***TRANSITIVE PROPERTY****, the statement that corresponds with it will ALWAYS be* ***CONGURENT****!!!* ***It's just chain reasoning!!***

5: Given: $\angle 1$ is a straight angle
$\angle 1 \cong \angle 2$

Conclusion: $\angle 2$ is a straight $\angle$

Reason: Substitution Property

6. Given: $\angle 1 \cong \angle 2$
$\angle 2 \cong \angle 3$

Conclusion: $\angle 1 \cong \angle 3$

Reason: Transitive Property

A Two Column Proof Description:

Statements	Reasons

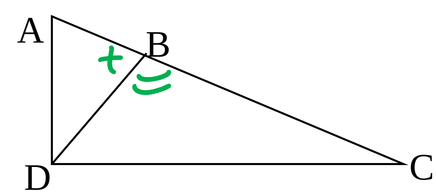
1. Every proof will start with a given statement.
2. Every proof will end with the to "prove" statement.
3. Every proof has numbered statements and reasons!

- Remember that reasons should always be written as "if ..., then ..." statements (conditional).
- The hypothesis "if" of the reason always comes from the previous step.
- The conclusion "then" of the reason always refers to information from the current step.

Use the information below to write a two column proof:

1) Given: $\measuredangle ABD$ and $\measuredangle CBD$ form a linear pair

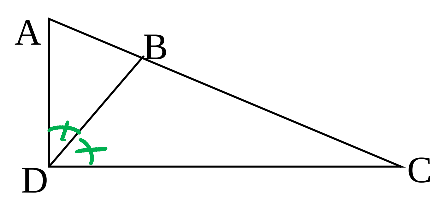
Prove: $\measuredangle ABD$ and $\measuredangle CBD$ are supplementary



Statements	Reasons
1. $\angle ABD$ and $\angle CBD$ form a linear pair	1. Given
2. $\angle ABD$ and $\angle CBD$ are supplementary	2. If 2 $\angle$'s form a linear pair, then they are supplementary.

2) Given: $\overrightarrow{DB}$ bisects $\angle ADC$

Prove: $\angle ADB \cong \angle BDC$



Statements	Reasons
1. $\overrightarrow{DB}$ bisects $\angle ADC$.	1. Given
2. $\angle ADB \cong \angle BDC$	2. If a ray bisects an $\angle$, then it ÷ the angle into 2 $\cong$ $\angle$'s.

Think-Pair-Share: How is drawing conclusions different from writing a proof?