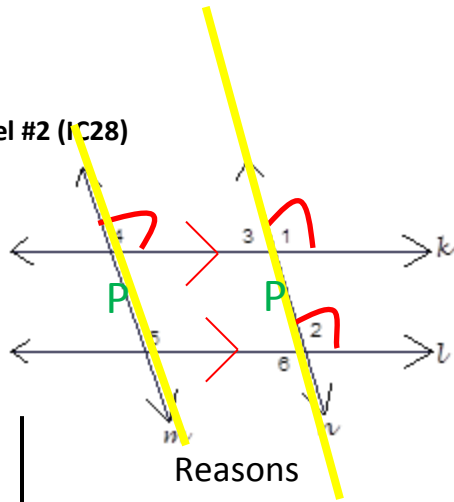


Geometry (G.CO.9)

Unit One B: Proving Lines are Parallel #2 (IC28)

1. Given: $line\ k \parallel line\ l$
 $\angle 2 \cong \angle 4$

Prove: $line\ m \parallel line\ n$



| Statements | Reasons |
|--------------------------------|---|
| 1) $line\ k \parallel line\ l$ | 1) Given |
| 2) $\angle 2 \cong \angle 4$ | 2) Given |
| 3) $\angle 1 \cong \angle 2$ | 3) $\parallel\ lines \rightarrow Corr.\ \angle's \cong$ |
| 4) $\angle 1 \cong \angle 4$ | 4) Transitive Property (2,3) |
| 5) $line\ m \parallel line\ n$ | 5) $Corr.\ \angle's \cong \rightarrow \parallel\ lines$ |

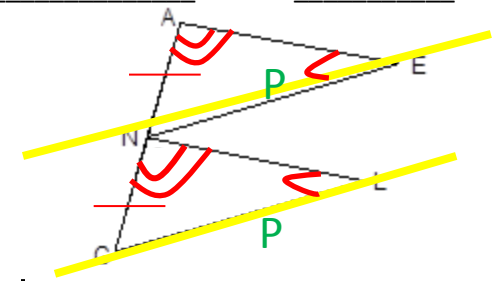
• Step 2 could have also been $\angle 4 \cong \angle 5$ for same reason and the rest of the proof would be similar except step 4 would be $\angle 2 \cong \angle 5$

Name: _____

Date: _____ Period: _____

2. Given: $\angle L \cong \angle E$; $\angle A \cong \angle GNL$;
 N is the midpoint of \overline{AG}

Prove: $\overline{NE} \parallel \overline{GL}$



| Statements | Reasons |
|--|---|
| 1) $\angle L \cong \angle E$ | 1) Given |
| 2) $\angle A \cong \angle GNL$ | 2) Given |
| 3) N is the midpoint of \overline{AG} | 3) Given |
| 4) $\overline{AN} \cong \overline{NG}$ | 4) def of midpoint |
| 5) $\triangle ANE \cong \triangle NGL$ | 5) AAS |
| 6) $\angle ANE \cong \angle NGL$ | 6) CPCTC |
| 7) $\overline{NE} \parallel \overline{GL}$ | 7) $Corr.\ \angle's \cong \rightarrow \parallel\ lines$ |