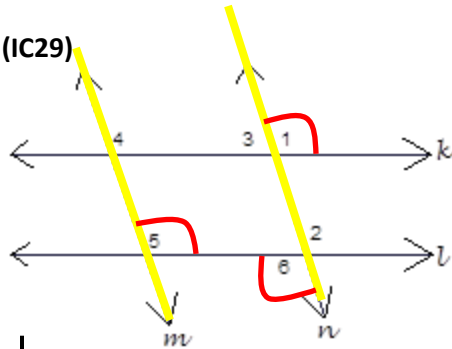


Geometry (G.CO.9)

Unit One B: Proofs with Parallels #4 (IC29)

1. Given:  $line\ k \parallel line\ l$   
 $\angle 5 \cong \angle 1$

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



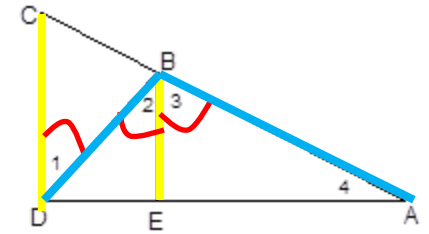
Statements	Reasons
1) $line\ k \parallel line\ l$	1) Given
2) $\angle 5 \cong \angle 1$	2) Given
3) $\angle 1 \cong \angle 6$	3) $\parallel\ lines \rightarrow Alt\ Ext\ \angle's \cong$
4) $\angle 5 \cong \angle 6$	4) Transitive Property (2,3)
5) $line\ m \parallel line\ n$	5) $Alt\ int\ \angle's \cong \rightarrow \parallel\ lines$
<ul style="list-style-type: none"> <li>• Step 3 could have also been <math>\angle 4 \cong \angle 5</math> or <math>\angle 1 \cong \angle 2</math> (<math>\parallel\ lines \rightarrow Corr\ \angle's \cong</math>)</li> </ul>	

Name: \_\_\_\_\_

Date: \_\_\_\_\_ Period: \_\_\_\_\_

2. Given:  $\angle 1 \cong \angle 3$ ;  $\overline{BE}$  bisects  $\angle ABD$

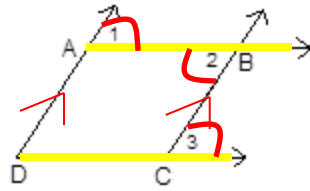
Prove:  $\overline{CD} \parallel \overline{BE}$



Statements	Reasons
1) $\angle 1 \cong \angle 3$	1) Given
2) $\overline{BE}$ bisects $\angle ABD$	2) Given
3) $\angle 2 \cong \angle 3$	3) Def of $\angle$ bisector
4) $\angle 1 \cong \angle 2$	4) Transitive Property (1,3)
5) $\overline{CD} \parallel \overline{BE}$	5) $Alt\ int\ \angle's \cong \rightarrow \parallel\ lines$

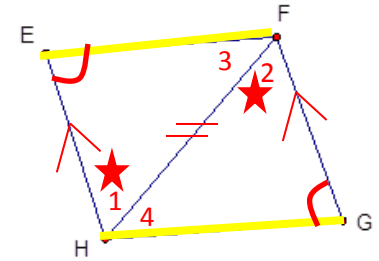
3. Given:  $\overline{DA} \parallel \overline{CB}$ ;  $\angle 1 \cong \angle 3$ ;

Prove:  $\overline{AB} \parallel \overline{DC}$



4. Given:  $\angle E \cong \angle G$ ;  
 $\overline{EH} \parallel \overline{FG}$

Prove:  $\overline{EF} \parallel \overline{HG}$



Statements	Reasons
1) $\overline{DA} \parallel \overline{CB}$	1) Given
2) $\angle 1 \cong \angle 3$	2) Given
3) $\angle 1 \cong \angle 2$	3) $\parallel$ lines $\rightarrow$ Alt Int $\angle$ 's $\cong$
4) $\angle 2 \cong \angle 3$	4) Transitive Property (2,3)
5) $\overline{AB} \parallel \overline{DC}$	5) Alt int $\angle$ 's $\cong \rightarrow \parallel$ lines

Statements	Reasons
1) $\angle E \cong \angle G$	1) Given
2) $\overline{EH} \parallel \overline{FG}$	2) Given
3) $\angle 1 \cong \angle 2$	3) $\parallel$ lines $\rightarrow$ Alt Int $\angle$ 's $\cong$
4) $\overline{FH} \cong \overline{HF}$	4) Reflexive prop
5) $\triangle EHF \cong \triangle GFH$	5) AAS
6) $\angle 3 \cong \angle 4$	6) CPCTC
7) $\overline{EF} \parallel \overline{HG}$	7) Alt int $\angle$ 's $\cong \rightarrow \parallel$ lines