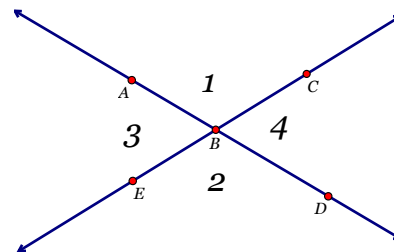


## 2.6 Assignment

In Exercises 1 and 2, Complete the two column proof using the figure to the right.

1. Prove the **Linear Pair theorem**. You cannot use the  
 Given:  $\angle 1$  and  $\angle 4$  are a linear pair  
 Prove:  $m\angle 1 + m\angle 4 = 180^\circ$

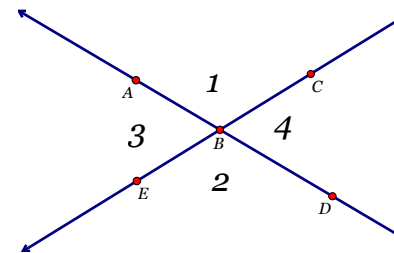
Statement	Reason
1. $\angle 1$ and $\angle 4$ are a linear pair	
2. $m\angle ABD = 180^\circ$	
3. $m\angle \underline{\hspace{2cm}} + m\angle \underline{\hspace{2cm}} = m\angle ABD$	Angle Addition Postulate
4. $\therefore m\angle 1 + m\angle 4 = 180^\circ$	



2. Prove the **Vertical Angle theorem**

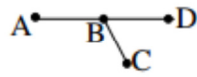
Given:  $\angle 1$  and  $\angle 2$  are vertical angles  
 Prove:  $\angle 1 \cong \angle 2$

Statement	Reason
1. $\angle 1$ and $\angle 2$ are vertical angles	
2. $m\angle 1 + m\angle 4 = 180^\circ$	
3. $m\angle 4 + m\angle 2 = 180^\circ$	
4. $m\angle 1 + m\angle 4 = m\angle 4 + m\angle 2$	
5.	
4. $\therefore \angle 1 \cong \angle 2$	Definition of Congruence



Write a two column proof for the following. You may need to use only some, all, or more lines than what is in the table.

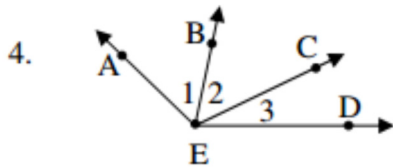
3. Given:  $AB = BC$   
 $BC = BD$



Prove: B is the midpoint of  $\overline{AD}$

**Plan:** Write the “Given” information and use the transitive property to show that  $AB=BD$ . Then use the definition of congruence to show that the segments are congruent and the definition of midpoint to finish the proof.

Statement	Reason



- Given:  $\angle 1$  and  $\angle 2$  are complementary  
 $\angle 3$  and  $\angle 2$  are complementary

Prove:  $m\angle 1 = m\angle 3$

Statement	Reason

