Name: _____ Geometry Homework

Date: _____ Period: _____ **2.6A** Angle Proofs

Justify each of the following statements using a definition, theorem, or postulate.

1. $If\ \angle D \cong \angle E, then\ m\angle D = m\angle E$_____
2. $If\ m\angle 1 + m\angle 2 = 90°, then\ \angle 1\ and\ \angle 2\ are\ complementary$_____
3. $If\ \angle P\ and\ \angle Q\ are\ supplementary\ angles, then\ m\angle P + m\angle Q = 180°$_____
4. $If\ m\angle JKL = 90°, then\ \angle JKL\ is\ a\ right\ angle.$_____
5. $If\ \angle 3\ and\ \angle 4\ are\ vertical\ angles\ then\ \angle 3 \cong \angle 4$_____
6. $If\ \angle A\ and\ \angle B\ are\ right\ angles, then\ \angle A \cong \angle B$_____
7. $If\ \angle X\ and\ \angle Y form\ a\ linear\ pair, then\ \angle X\ and\ \angle Y\ are\ supplementary.$_____

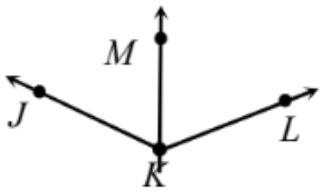
Complete the proofs below by filling in the missing statements and reasons.

8. **Given**: $\angle 1\ and\ \angle 2\ form\ linear\ pair; \angle 1\ and\ \angle 3\ are\ supplementary$

Prove: $\angle 2 \cong \angle 3$

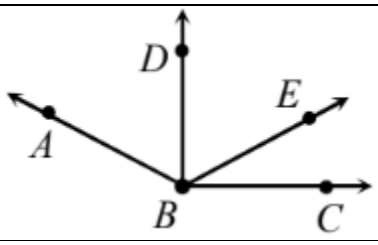
Statements	Reasons
1. $\angle 1\ and\ \angle 2\ form\ linear\ pair$	
2. $\angle 1\ and\ \angle 2\ are\ supplementary$	
3. $m\angle 1 + m\angle 2 = 180°$	
4. $\angle 1\ and\ \angle 3\ are\ supplementary$	
5. $m\angle 1 + m\angle 3 = 180°$	
6. $m\angle 1 + m\angle 2 = m\angle 1 + m\angle 3$	
7. $m\angle 2 = m\angle 3$	
8. $\angle 2 \cong \angle 3$	

9. Given: $\overrightarrow{KM}$ *bisects* $\angle JKL$
Prove: $m\angle MKL = \frac{1}{2}m\angle JKL$



Statements	Reasons
1. $\overrightarrow{KM}$ *bisects* $\angle JKL$	
2. $\angle JKM \cong \angle MKL$	
3. $m\angle JKM = m\angle MKL$	
4. $m\angle JKM + m\angle MKL = m\angle JKL$	
5. $m\angle MKL + m\angle MKL = m\angle JKL$	
6. $2m\angle MKL = m\angle JKL$	
7. $m\angle MKL = \frac{1}{2}m\angle JKL$	

10. Given: $\overrightarrow{BD} \perp \overrightarrow{BC}$; $\angle ABD \cong \angle DBE$
Prove: $\angle ABD$ *and* $\angle EBC$ *are complementary*



Statements	Reasons
1. $\overrightarrow{BD} \perp \overrightarrow{BC}$	
2. $\angle DBC$ *is a right angle*	
3. $m\angle DBC = 90$	
4. $m\angle DBE + m\angle EBC = m\angle DBC$	
5. $m\angle DBE + m\angle EBC = 90$	
6. $\angle ABD \cong \angle DBE$	
7. $m\angle ABD = m\angle DBE$	
8. $m\angle ABD + m\angle EBC = 90$	
9. $\angle ABD$ *and* $\angle EBC$ *are complementary*	