

Name: Key

Making Conclusions: An Introduction to Proof Writing HW

Directions: Make a geometric conclusion based on the given information or diagram. You may need to draw a figure to visualize the concept prior to making a conclusion. Then use your justifications to explain the geometric conclusion.

1. Given: E is the midpoint of \overline{BD}



Conclusion: $\overline{BE} \cong \overline{ED}$

Justification: def. of midpt.

2. Given: A bisects \overline{CT}



Conclusion: $\overline{CA} \cong \overline{AT}$

Justification: def of seg. bisector
You must use this and NOT midpt.

3. Given: $\angle DAY$ and $\angle YAK$ are a linear pair

Conclusion: $\angle DAY + \angle YAK = 180^\circ$

Justification: linear pairs are suppl.

4. Given: $\angle TOM$ is the supplement of $\angle SUE$

Conclusion: $\angle TOM + \angle SUE = 180^\circ$

Justification: def of suppl.

5. Given:

Conclusion: $\angle 5 + \angle 6 = 180^\circ$

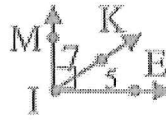
Justification: linear pairs are suppl.

6. Given: $\angle CAT$ and $\angle RAP$ are vertical angles.

Conclusion: $\angle CAT \cong \angle RAP$

Justification: vertical \angle s are \cong

7.



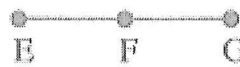
Given:

Conclusion: $\angle 7 + \angle 5 = \angle MIE$

Justification: angle addition

You may NOT use $\angle 7 + \angle 5 = 90^\circ$

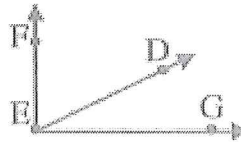
8. Given:



Conclusion: $\overline{EF} + \overline{FG} = \overline{EG}$

Justification: Segment addition

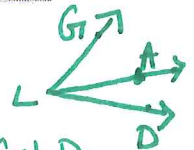
9. Given:



Conclusion: $\angle FED + \angle DEG = \angle FEG$

Justification: angle addition

10. Given: A is in the interior of $\angle GLD$



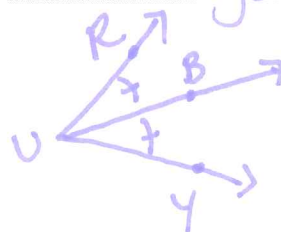
Conclusion: $\angle GLA + \angle ALD = \angle GLD$

Justification: angle addition

11. Given: \overline{UB} bisects $\angle RUY$

Conclusion: $\angle RUB \cong \angle BUY$

Justification: def of angle bisector



Directions: Fill in the correct justifications to make a logical argument.

12. Given: $\angle 1$ is supplementary to $\angle 2$, $\angle 3$ is supplementary to $\angle 4$, and $\angle 2 \cong \angle 4$
 Prove: $\angle 1 \cong \angle 3$

need to add to given

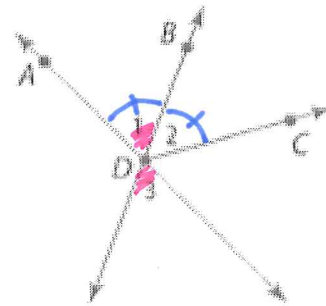
Statements:

1. $\angle 1$ & $\angle 2$ are supp.
 $\angle 3$ & $\angle 4$ are supp.
2. $m\angle 1 + m\angle 2 = 180^\circ$
 $m\angle 3 + m\angle 4 = 180^\circ$
3. $m\angle 1 + m\angle 2 = m\angle 3 + m\angle 4$
4. $m\angle 1 + m\angle 4 = m\angle 3 + m\angle 4$
5. $m\angle 1 \cong m\angle 3$

Reasons:

1. Given
2. def of suppl.
3. subst.
4. subs (subs. $\angle 4$ in for $\angle 2$)
5. Subtraction

13. Given: \overrightarrow{DB} is an angle bisector of $\angle ADC$
 Prove: $\angle 2 \cong \angle 3$



Statements:

1. \overrightarrow{DB} is an angle bisector of $\angle ADC$
2. $\angle 2 \cong \angle 1$
3. $\angle 1 \cong \angle 3$
4. $\angle 2 \cong \angle 3$

Reasons:

1. Given
2. def of \angle bisector
3. vertical \angle s are \cong
4. Substitution