

**Assumptions and Justifications**

Use page 73 in your book to help complete the notes below...

Things You Can Assume From a Diagram

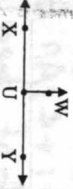
If a line looks straight it is Not to Scale

Things You CAN'T Assume From a Diagram  
Right  $\neq$  Just because it looks  $\neq$  doesn't mean it is.

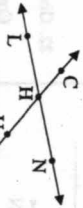
I. For each picture list the facts you can assume from it



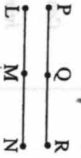
ATM are collinear



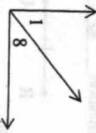
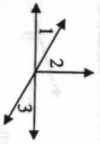
$\overline{XUV} + \overline{UVY}$  are a line pair



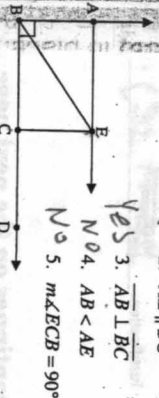
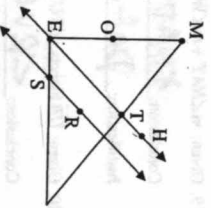
$\overline{CU} + \overline{UN}$  intersect in pt H nothing



Q is between P & R  
M is between L & N  
 $\angle 1 + \angle 3$  are vertical  $\neq$



- II. Based on the picture alone, determine if each statement is true or false.
- $\overline{ET} \parallel \overline{SR}$  NO
  - $\angle MES$  is a right angle. NO
  - $T$  is between  $E$  and  $H$ . YES
  - $M, O, S$ , and  $H$  are coplanar. YES
  - $\overline{MO} \cong \overline{OE}$  NO
  - $\angle OET \cong \angle TES$  NO
  - $O$  and  $R$  are collinear. NO
  - $\angle MTH$  is a right angle. NO



- $\angle AEB$  is an acute angle. NO
- $\overline{AE} \parallel \overline{BC}$  NO
- $\overline{AB} \perp \overline{BC}$  YES
- $AB < AE$  NO
- $m\angle ECB = 90^\circ$  YES
- $\angle BEC$  and  $\angle ECB$  are supplementary. NO
- $\angle AEB$  and  $\angle BEC$  are complementary. NO
- $C$  is the midpoint of  $\overline{BD}$ . NO
- $\angle BCE$  and  $\angle ECD$  are a linear pair. YES
- $\angle ABE$  and  $\angle EBC$  are complementary. YES

III. For each statement and its next logical conclusion, tell which definition, postulate, or theorem gives the justification:

1. Given:  $\overline{AM} \cong \overline{WU}$ .  
Conclusion:  $\overline{AM} = \overline{WU}$

Why: Def  $\cong$

2. Given:  $E$  is the midpoint of  $\overline{BD}$ .  
Conclusion:  $\overline{BE} \cong \overline{ED}$

Why: Def midpoint

3. Given:  $A$  bisects  $\overline{CT}$ .  
Conclusion:  $\overline{CA} \cong \overline{AT}$

Why: Def of bisector

4. Given:  $CO = OL$ .  
Conclusion:  $\overline{CO} \cong \overline{OL}$

Why: Def of  $\cong$

5. Given:  $\angle DAY$  and  $\angle YAK$  are a linear pair.  
Conclusion:  $\angle DAY$  &  $\angle YAK$  are supplementary

Why: Def of linear pair

6. Given:  $\angle TOM$  is the supplement of  $\angle SUE$ .  
Conclusion:  $m\angle TOM + m\angle SUE = 180^\circ$

Why: Def of supplementary

7. Given:  $A$  and  $B$  lie in Plane  $JOG$ .  
Conclusion:  $A$  and  $B$  are collinear

Why: Def of collinear

8. Given:  $A$  is in the interior of  $\angle GID$ .  
Conclusion:  $m\angle GIA + m\angle AID = m\angle GID$

Why: Angle addition

9. Given:  $\angle 1$  is the complement to  $\angle 3$ .  
Conclusion:  $m\angle 1 + m\angle 3 = 90^\circ$

Why: Def of complement

10. Given:  $\overline{AHM}$  is vertical to  $\angle EAT$ .  
Conclusion:  $\angle HAM \cong \angle EAT$

Why: Vertical  $\angle$  Theorem



11. Given:  $U$  is the midpoint of  $\overline{RV}$ .  
Conclusion:  $\overline{UR} \cong \overline{UV}$

Why: Def of midpoint



12. Given:  $\angle 8$  and  $\angle 9$  are vertical

Conclusion:  $\angle 8 \cong \angle 9$

Why: Vertical  $\angle$  Theorem

13. Given:  $m\angle NAT + m\angle WED = 90^\circ$ .  
Conclusion:  $\angle NAT$  &  $\angle WED$  are complementary

Why: Converse Def of complementary

14. Given:  $\overline{FA} \cong \overline{RM}$ .  
Conclusion:  $\overline{FA} = \overline{RM}$

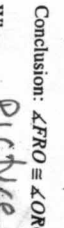
Why: Def of  $\cong$

15. Given:  $MA = TH$ .  
Conclusion:  $\overline{MA} \cong \overline{TH}$

Why: Converse Def of  $\cong$

16. Given:  $m\angle AFD + m\angle BAT = 180^\circ$ .  
Conclusion:  $\angle AFD$  &  $\angle BAT$  are supplementary

Why: Conv. Def of supp.



17. Given:  $\overline{FR} \cong \overline{OS}$ .  
Conclusion:  $\overline{RO} \cong \overline{OG}$

Why: Picture/Given

18. Given:  $m\angle 2 = m\angle 6$ .  
Conclusion:  $\angle 2 \cong \angle 6$

Why: Converse Def of  $\cong$

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

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

### Making Conclusions

1. Given:  $\overline{TO} \cong \overline{AN}$

Conclusion:  $\overline{TO} = \overline{AN}$   
Justification: Def of  $\cong$

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

Conclusion:  $\overline{BE} \cong \overline{ED}$   
Justification: Def of midpoint

3. Given: A bisects  $\overline{CT}$

Conclusion:  $\overline{CA} \cong \overline{AT}$   
Justification: Def of bisector

4. Given:  $\overline{CO} \cong \overline{OL}$

Conclusion:  $\overline{CO} \cong \overline{OL}$   
Justification: Def of  $\cong$

5. Given:  $\angle DAT$  and  $\angle YAK$  are a linear pair

Conclusion:  $\angle DAY + \angle YAK \cong 180^\circ$   
Justification: Def of linear pair

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

Conclusion:  $\angle TOM + \angle SUE = 180^\circ$   
Justification: Def of supp

7. Given: 

Conclusion:  $\angle MUT + \angle TUS \cong 180^\circ$   
Justification: picture

### Making Conclusions

8. Given: 

Conclusion:  $\angle MIK + \angle KIE$  are comp  
Justification: Def of comp

9. Given: 

Conclusion:  $F$  is between  $E + G$   
Justification: collinear

10. Given: 

Conclusion:  $\angle FEN + \angle DEG = \angle FEG$   
Justification: angle addition

11. Given:  $m\angle ABC = m\angle HIJ$

Conclusion:  $\angle ABC \cong \angle HIJ$   
Justification: Def of  $\cong$

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

Conclusion:  $\angle CAT \cong \angle RAP$   
Justification: Def of V.A.

13. Given:  $\angle SAT \cong \angle ACT$

Conclusion:  $m\angle SAT = m\angle ACT$   
Justification: Def of  $\cong$

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

Conclusion:  $m\angle GLA + m\angle ALD = m\angle GLD$   
Justification: angle addition

15. Given:  $\overline{FA} \cong \overline{RM}$

Conclusion:  $\overline{FA} = \overline{RM}$   
Justification: Def of  $\cong$

16. Given:  $\angle HAM$  is vertical to  $\angle EAT$

Conclusion:  $\angle HAM \cong \angle EAT$   
Justification: Def V.A.

17. Given: 

Conclusion:  $U$  is midpoint of  $\overline{RN}$   
Justification: Def of midpoint

18. Given: 

Conclusion:  $\angle 8 + \angle 9 = \angle EVN$   
Justification: picture

19. Given:  $m\angle NAT + m\angle WED = 90^\circ$

Conclusion:  $\angle NAT + \angle WED$  are comp  
Justification: Def of comp

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

Conclusion:  $\angle RUB \cong \angle BUY$   
Justification: Def of bisector

21. Given: 

Conclusion:  $\angle 8 + \angle 9$  are linear pair  
Justification: Def of L.P

22. Given: 

Conclusion:  $\angle ILK$  is angle bisector  
Justification: Def of bisector

23. Given:  $\angle PAI$  and  $\angle IAR$  are a linear pair

Conclusion:  $\angle PAI + \angle IAR$  are supp  
Justification: Def of linear pair

24. Given:  $\angle CAT$  and  $\angle RAP$  are complementary angles.

Conclusion:  $\angle CAT + \angle RAP = 90^\circ$   
Justification: Def of comp

25. Given:  $m\angle NAT + m\angle WED = 180^\circ$

Conclusion:  $\angle NAT + \angle WED$  are supp  
Justification: Def of supp

26. Given: A is between J and M

Conclusion:  $\angle JAM = \angle JMA$   
Justification: picture

"Making Conclusions" Worksheet continues on the next page...