Geometry- Mrs. Tilus Name: _____
Unit 2- Worksheet #4: Postulates and Diagrams

1. A _____ is a line that intersects the plane in a point and is perpendicular to every line in the plane that interests it.

State the postulate illustrated by the diagram.

2. 

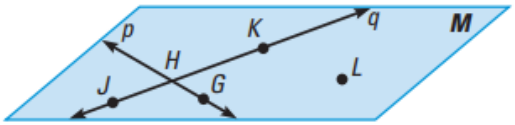
3. 

Use the diagram to write an example of each postulate.

Example: Postulate 10- Points J and K lie in Plane M, then line q also lies in Plane M.

4. Postulate 6

5. Postulate 7



6. Postulate 8

7. Sketch a diagram showing $\overleftrightarrow{XY}$ intersecting $\overleftrightarrow{WV}$ at point T, so $\overleftrightarrow{XY} \perp \overleftrightarrow{WV}$. In your diagram, does $\overline{WT}$ have to be congruent to $\overline{TV}$? **Explain your reasoning.**

Determine whether the following statements can be assumed by the diagram? (Answer yes or no)

8. Point A, B, C and F are coplanar

9. Points F, B and G are collinear.

10. $\overleftrightarrow{HC} \perp \overleftrightarrow{GE}$

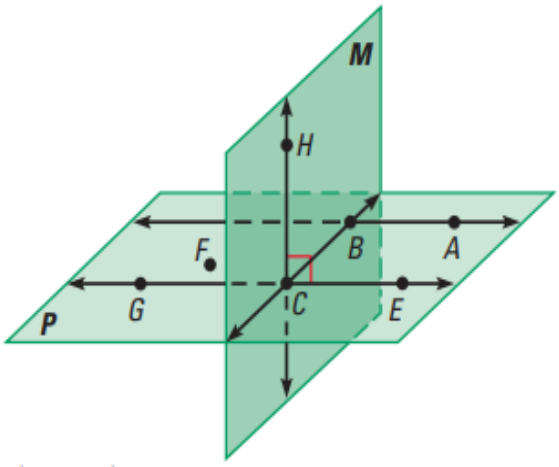
11. $\overleftrightarrow{EC}$ intersects plane M at point C.

12. $\overline{AB} \cong \overline{EC}$

13. $\angle ABC = 90°$

14. Point C is the midpoint of $\overline{GE}$

15. $\overleftrightarrow{HC} \perp \overleftrightarrow{AB}$



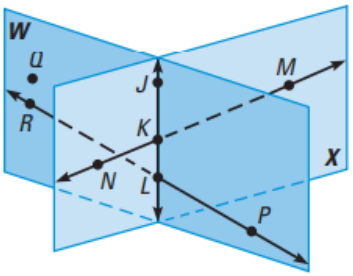
Decide whether the statement is true or false. **If it is false, give a counterexample.**

16. Through any three points, there exists exactly one line.

17. A point can be in more than one plane.

18. Any two planes intersect.

Use the diagram to determine if the statement is true or false.



19. Planes W and X intersect at $\overleftrightarrow{KL}$

20. Points Q, J, and M are collinear.

21. Point K, L, M and R are coplanar.

22. $\overleftrightarrow{MN}$ and $\overleftrightarrow{RP}$ intersect.

23. $\overleftrightarrow{RP} \perp$ plane W

24. $\overleftrightarrow{JK}$ lies in plane X.

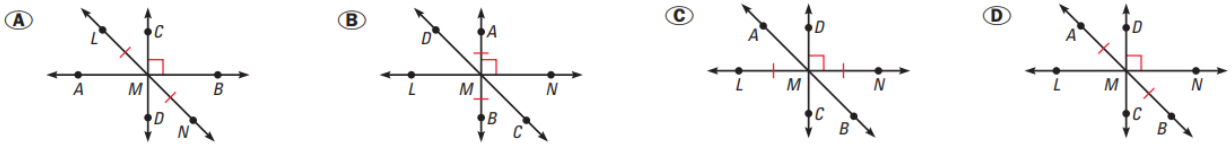
25. $\angle PLK$ is a right angle.

26. $\angle NKL$ and $\angle JKM$ are vertical angles

27. $\angle NKJ$ and $\angle JKM$ are supplementary angles

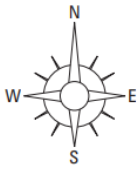
28. $\angle JKM$ and $\angle KLP$ are congruent angles.

29. Choose the diagram showing $\overleftrightarrow{LN}$, $\overleftrightarrow{AB}$ and $\overleftrightarrow{DC}$ intersecting at point M, $\overleftrightarrow{AB}$ bisecting $\overline{LN}$, and $\overleftrightarrow{DC} \perp \overleftrightarrow{LN}$



30. A friend e-mailed you the following statements about a neighborhood. Complete the following.

a.) Draw a diagram of the neighborhood



Subject Neighborhood

Building B is due west of Building A.
Buildings A and B are on Street 1.
Building D is due north of Building A.
Buildings A and D are on Street 2.
Building C is southwest of Building A.
Buildings A and C are on Street 3.
Building E is due east of Building B.
CAE formed by Streets 1 and 3 is obtuse.

b.) Where do streets 1 and 2 intersect?

c.) Classify the angle formed by streets 1 and 2.

d.) Is Building E between Buildings A and B? Explain.

e.) What street is Building E on?