Day 1

1-3 Points, Lines, Planes

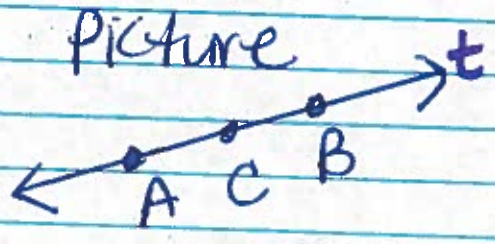
3 undefined terms:
1) Point 2) line 3.) plane

- Point is a location that has no size and is represented by a dot and a capital letter.

•A

- Space is the set of all points.
- Line is a series of points that extends in 2 opposite directions without end.

Picture



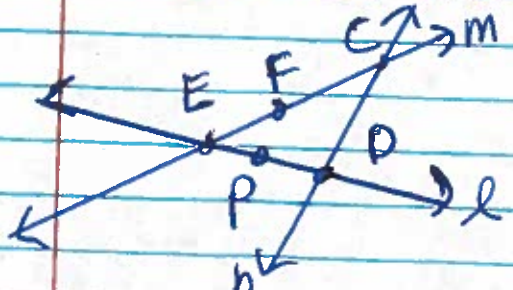
symbol (2 letters in symbol)

$\overleftrightarrow{AB}$ or $\overleftrightarrow{BA}$

or line t

$\overleftrightarrow{AC}$, $\overleftrightarrow{CA}$, $\overleftrightarrow{BC}$, $\overleftrightarrow{CB}$

- Collinear Points: points that lie on the same line
- Noncollinear Points: points that do not lie on the same line



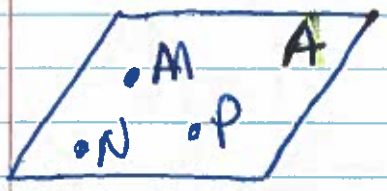
collinear: E, F, C or E, P, D

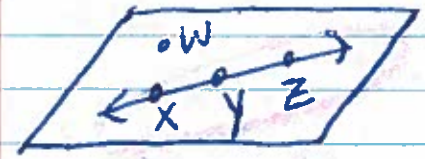
noncollinear: C, D, P

- **Plane** is a flat surface that has no thickness, and extends in all directions.

- you name it by 3 noncollinear points or by a single capital letter in the corner

Picture





OR

Symbol

plane A

plane MNP

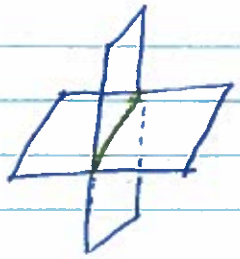
cannot plane XYZ ← collinear

plane WXY

- **Postulate** or **Axiom** is an accepted statement of fact

- **Theorem** is a conjecture that is proven

2 Lines intersect a point.



2 planes intersect at one line.

Name _____ Block _____ Date _____

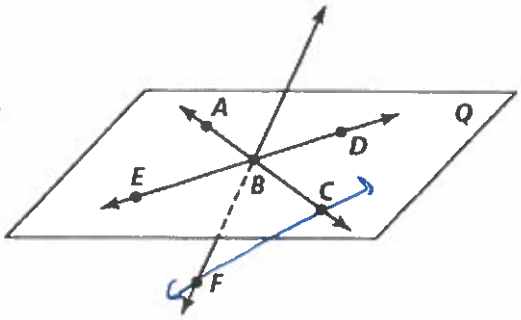
Practice 1-3 ..... **Points, Lines, and Planes**

Refer to the diagram at the right for Exercises 1–15.

1. Name $\overleftrightarrow{AB}$ in another way. BA

2. Give two other names for plane Q. plane AEC (3 noncollinear points)

3. Why is EBD not an acceptable name for plane Q?



Are the following sets of points collinear?

4. $\overleftrightarrow{AB}$ and C ✓

5. B and F _____

6. $\overleftrightarrow{EB}$ and A _____

7. F and plane Q _____

Are the following sets of points coplanar?

8. E, B, and F no

9. $\overleftrightarrow{DB}$ and $\overleftrightarrow{FC}$ no

10. $\overleftrightarrow{AC}$ and $\overleftrightarrow{ED}$ _____

11. $\overleftrightarrow{AE}$ and $\overleftrightarrow{DC}$ _____

12. F, A, B, and C _____

13. F, A, B, and D _____

14. plane Q and $\overleftrightarrow{EC}$ _____

15. $\overleftrightarrow{FB}$ and $\overleftrightarrow{BD}$ _____

Find the intersection of the following lines and planes in the figure at the right.

16. $\overleftrightarrow{GK}$ and $\overleftrightarrow{LG}$ G

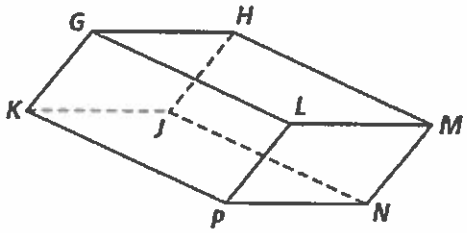
17. planes GLM and LPN LM

18. planes $GHPN$ and KJP _____

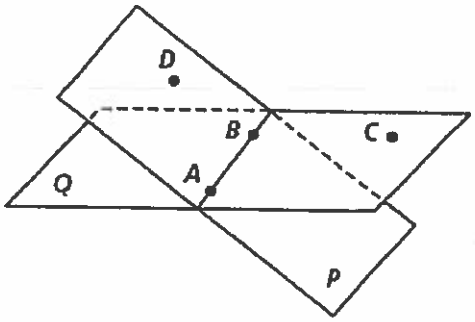
19. planes HJN and GKL _____

20. $\overleftrightarrow{KP}$ and plane KJN _____

21. $\overleftrightarrow{KM}$ and plane GHL _____



Refer to the diagram at the right.



22. Name plane P in another way.

23. Name plane Q in another way.

24. What is the intersection of planes P and Q? _____

25. Are A and C collinear? _____

26. Are D, A, B, and C coplanar? _____

27. Are D and C collinear? _____

28. What is the intersection of $\overleftrightarrow{AB}$ and $\overleftrightarrow{DC}$? _____

29. Are planes P and Q coplanar? _____

30. Are $\overleftrightarrow{AB}$ and plane Q coplanar? _____

31. Are B and C collinear? _____