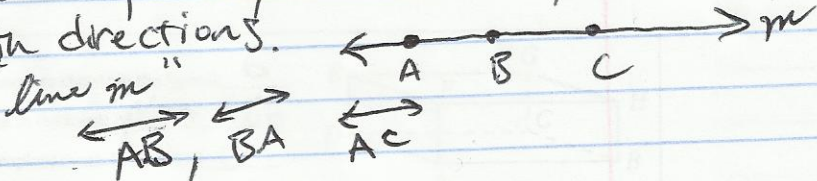


1-3 Points, Lines, Planes

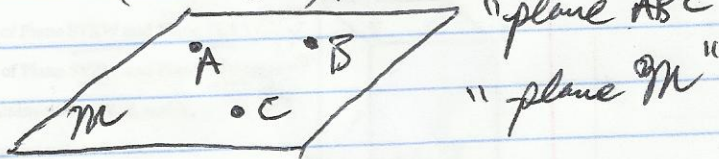
Vocab:

Point = location; has no size; represented w/a dot.
names by capital letter $\bullet A$

Line - a series of points, with no end, extending in both directions.
line m


Space - set of all points.

Plane - flat surface (no edges); no thickness; no end



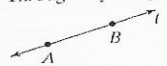
Postulate - an accepted statement of fact.

Theorem - requires proof to be accepted as fact.

Statements reasons
 $\leftrightarrow AB \parallel CD$

Postulate 1-1

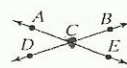
Through any two points there is exactly one line.



Line l is the only line that passes through points A and B .

Postulate 1-2

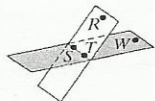
If two lines intersect, then they intersect in exactly one point.



\overleftrightarrow{AE} and \overleftrightarrow{BD} intersect at C .

Postulate 1-3

If two planes intersect, then they intersect in exactly one line.

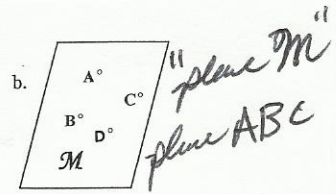
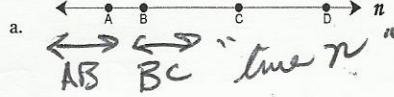


Plane RST and plane STW intersect in \overleftrightarrow{ST} .

Postulate 1-4

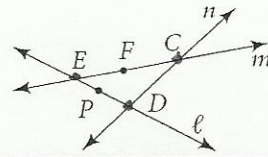
Through any three noncollinear points there is exactly one plane.

Example 1: List all of the possible names for each figure:



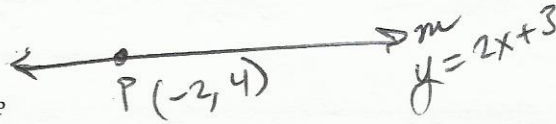
Example 2

- a. Are points E, F, and C collinear? YES
 b. Are points E, F, and D collinear? NO



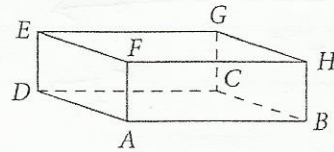
Example 3: Draw a diagram which satisfies all three descriptions:

- a. P is on m
 b. m contains P
 c. m passes through P



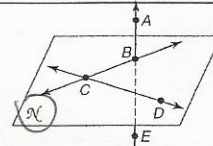
Example 4:

- a. How many planes are shown in the figure? 6
 b. Name the plane in the front: plane ABH
 c. Name a point coplanar with E, D, & C: G



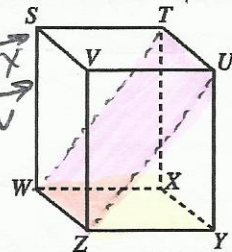
Example 5:

- a. Name a line that is not contained in plane N. AE
 b. Name a plane that contains point B. plane N
 c. Name 3 collinear points. A, B, E



Example 6:

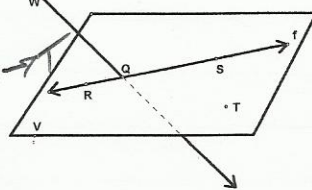
- a. What is the intersection of Plane STXW and Plane TUYX? TX
 b. What is the intersection of Plane SVZW and Plane SVUT? SV
 c. Shade the plane that contains points W, Z, and X.
 d. Shade the plane that contains points T, U, and W.



1.3 Points, Lines, & Planes

Use the diagram.

- 1) Give two other names for \overleftrightarrow{WQ} . \overleftrightarrow{QW} , \overleftrightarrow{any}
 2) Give another name for plane V. plane RST
 3) Name three points that are collinear. Then name a fourth point that is not collinear with those 3 points. R, Q, S
 4) Name a point that is not coplanar with R, S, and T. W



Use the diagram

- 5) Name the intersection of \overline{PR} and \overline{HR} . R
 6) Name the intersection of plane EFG and plane FGS. FG
 7) Name the intersection of plane PQS and plane HGS. RS
 8) Are points P, Q, and F collinear? Are they coplanar? NO YES
 9) Are points P and G collinear? Are they coplanar? YES YES
 10) Name three planes that intersect at point E. HEF, PEF, PEH

