

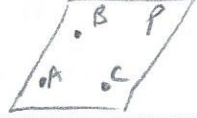





Objective- To understand basic terms and postulates of Geometry

**KEY Vocabulary:** Point, Line, Plane, Collinear Points, Coplanor, Space, Segment, Ray, Opposite Rays, Postulate, Axiom, Intersection

Definition	NAMING IT	DIAGRAM
A <b>point</b> indicates a location, has no size.	Represented by a point, named by a Capital letter Ex) point A →	
A <b>line</b> is a straight path extending in opposite directions with no end. Contains infinitely many points.	Name a line by any two points on a line such as $\overleftrightarrow{AB}$ or $\overleftrightarrow{BA}$ . Also named by a single lowercase letter $l$	
A <b>plane</b> is represented by a flat surface that extends without end. Contains infinitely many lines.	By capital letter, such as Plane P, or by at least 3 points in the plane, such as ABC	
A <b>segment</b> is part of a line that consists of two endpoints and all points in between.	By its two endpoints Ex) $\overline{AB}$ or $\overline{BA}$	
A <b>ray</b> is part of a line that consists of one endpoint and all points of the line on one side of the endpoint.	Name a ray by its endpoint and another point on the ray. Order of pts indicates direction.	
<b>Opposite rays</b> are two rays that share the same endpoints and form a line.	Named by shared endpoint and another point on each ray Ex) $\overrightarrow{CA}$ and $\overrightarrow{CB}$	

**Definition:**

A **postulate** or **axiom** is an accepted statement of fact.

**IMPORTANT POSTULATES!**

**Postulate 1-1:**

Through any two points there is exactly one line.

**Postulate 1-2:**

If two distinct lines intersect, then they intersect at exactly one point

**Postulate 1-3:**

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

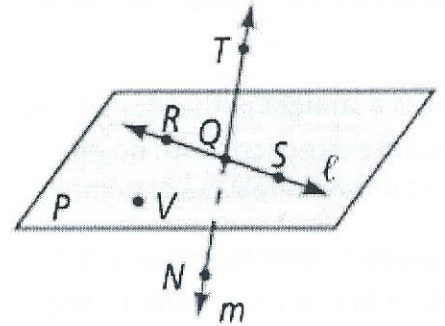
**Postulate 1-4:**

Through any three non-collinear points is exactly one plane.

**\*\*\*Practice!\*\*\***

Question 1: Naming Points, Lines, and Planes

- a) What are two other ways to name  $\overleftrightarrow{QT}$ ?  
 $\overleftrightarrow{QN}, \overleftrightarrow{TN}, \text{line } m$
- b) What are two other ways to name plane P?  
 Plane  $RVA$ , Plane  $RVS$
- c) Name three collinear points? Name four coplanar points?  
 $R, Q, S$  →  $V, R, Q, S$  →



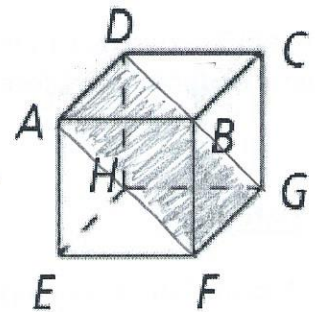
Question 2: Naming Segments and Rays

- a) What are the names of the segments in the figure?  
 $\overline{DE}, \overline{EF}, \overline{DF}$
- b) What are the names of the rays in the figure?  
 $\overrightarrow{ED}, \overrightarrow{EF}, \overrightarrow{DF}, \overrightarrow{FD}$
- c) Name a pair of opposite rays.  
 $\overrightarrow{ED}, \overrightarrow{EF}$



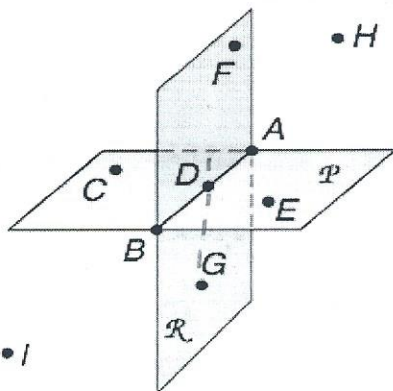
Question 3: Finding the intersection of two Planes

- a) What is the intersection of plane ADC and plane BFG?  
 $\overleftrightarrow{CB}$
- b) What are the names of the two planes that intersect at  $\overleftrightarrow{BF}$ ?  
 Plane  $ABF$  + Plane  $CBF$
- c) What plane contains points E, H, and F?  
 Plane  $EHF$
- d) What plane contains points A, D, and G?  
 Shade this plane  
 Plane  $ADG$



Question 4: Bringing it all together

List as many facts about this figure as you can using what you've learned in this section.



- \* Plane P intersects Plane R at  $\overleftrightarrow{BA}$
- \*  $\overleftrightarrow{DE}$  intersects  $\overleftrightarrow{BA}$  at point D
- \* B, D, A are collinear
- \* B, D, A, C, E are coplanar
- \*  $\overline{BD}, \overline{DA}, \overline{BA}$
- \* C, D, A and E are not coplanar