

Notes 1-1: Understanding Points, Lines, and Planes

Geometry - Ch. 1: Foundations for Geometry

Objectives: Identify, name, and draw points, lines, segments, rays, and planes.

Apply basic facts about points, lines, and planes.

1) A point names a location but has no dimension (size).



2) A line is a straight path with no thickness and extends forever.



(lowercase)

3) A plane is flat, extends forever, and has no thickness.

plane \mathcal{P} or ABC



cursive letter in the corner or by 3 non-collinear points on the plane

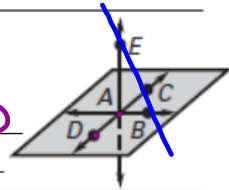
4) Points on the same line are called collinear.



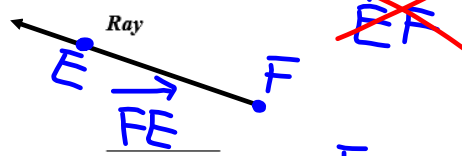
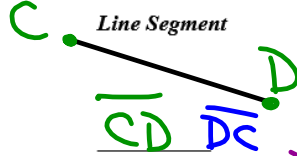
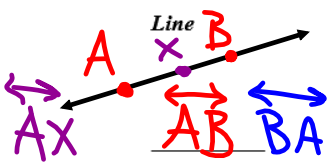
- line are called collinear.
- plane are called coplanar.

EX 1: Name ...

- a) 3 collinear points. D, A, C
- b) 4 coplanar points. A, B, C, D
- c) 3 non collinear points. B, C, D



5) Draw and label the differences of each figure by naming each and using correct symbols.



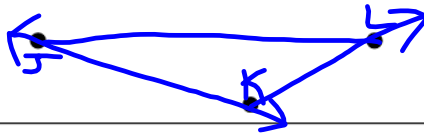
- a) The endpoints of the line segment are C and D.
- b) The initial point of the ray is F.

6) If point C is between points A and B, then CA and CB are called opposite rays.

- Draw an example:

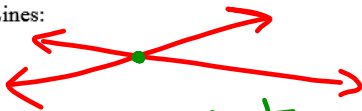


EX 2: Draw 3 noncollinear points, J, K, and L. Then draw \overline{JK} , \overline{KL} , \overline{LJ} .



7) When two or more geometric figures have one or more points in common, then they intersect.

- Lines:
- Planes:



a) Lines intersect at a point, and planes intersect at a line.

8) **Postulate:** (rule) a statement that is accepted as true without proof.

- **Postulate 1-1-1:** Through any two points there exists exactly 1 line(s).
- **Postulate 1-1-2:** Through any three noncollinear points there is exactly one plane containing them.
- **Postulate 1-1-3:** If two points lie on a plane, then the line containing those points also lies on the plane.