Geometry Notes   Points, Lines, & Planes   Name _____

Basic Definitions:

- A _____Point_____ has no dimension. We usually represent it with a small __dot__ and capital _____Letter_____. Draw Example:

  A •

  • C

- A _____Line_____ extends in one dimension. It is usually represented by a straight _____Line_____ with __two__ arrowheads to indicate that the _____Line_____ extends without end in two directions. Draw Example:

  ($\overleftrightarrow{AB}$)   • A • B

  m   (line m)
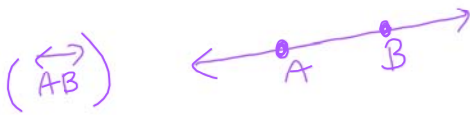
- A _____Plane_____ extends in two dimensions. It is usually represented by a shape that looks like a _____table top_____ or _____wall_____. You must imagine that the plane extends without end, even though the drawing of a plane appears to have edges. Draw Example:
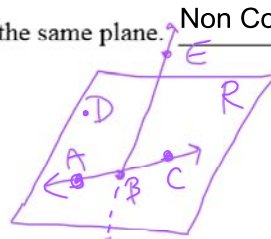
  • A   M
  • B   • C
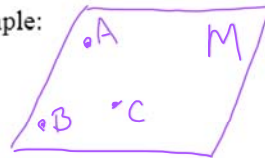
  Plane M with
  points A, B, C
  shown

- _____Collinear points_____ are points that lie on the same line. _____Non Collinear points_____ are points that do not lie on the same line. Draw Example:
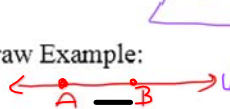
  • D
  A   B   C
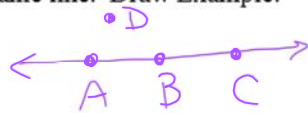
  A, B, C are collinear points
  A, C, D are non collinear points

- _____Coplanar points_____ are points that lie on the same plane. _____Non Coplanar points_____ are points that do not lie on the same plane. Draw Example:

  E
  • D   R
  A
  • B   C

  Coplanar: A, B, C, D
            A, B, C, E
  non coplanar: B, C, D, E

- line AB (symbolized ___AB___). Draw Example:

  A   B

- line segment or segment AB (symbolized ___AB___) consists of the _____endpoints_____ A and B, and all points on ___AB___ that are _____between_____ A and B. Draw Example:

  A •———————• B

- ray AB (symbolized ___AB___) consists of the _____initial point_____ A and all points on ___AB___ that lie on the same side of A as point B. Draw Example:

  A   B

- $\overleftrightarrow{AB}$ is the same as __BA__ , $\overline{AB}$ is the same as __BA__ , but $\overrightarrow{AB}$ is not the same as __BA__ . Draw $\overrightarrow{AB}$ and $\overrightarrow{BA}$:
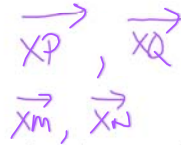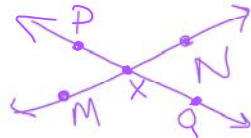
A   B

A B
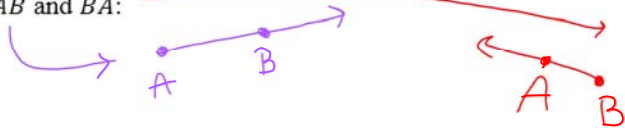
- If C is between __A__ and __B__ , then $\overrightarrow{CA}$ and $\overrightarrow{CB}$ are __opposite__ rays. Draw Example:

A   C   B

- Example: Draw three noncollinear points, J, K, and L. Then draw $\overrightarrow{JK}, \overline{KL},$ and $\overrightarrow{LJ}$.

J
K
L
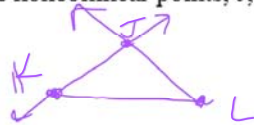
- Example: Draw $\overleftrightarrow{MN}$ and $\overleftrightarrow{PQ}$ intersecting at point X. Name two pairs of opposite rays.

P
N
M
X
Q

$\overrightarrow{XP}$, $\overrightarrow{XQ}$

$\overrightarrow{XM}$, $\overrightarrow{XN}$

- Example: Sketch the following: a) a line that intersects a plane in one point and b) two planes that intersect in a line.

a)

b)