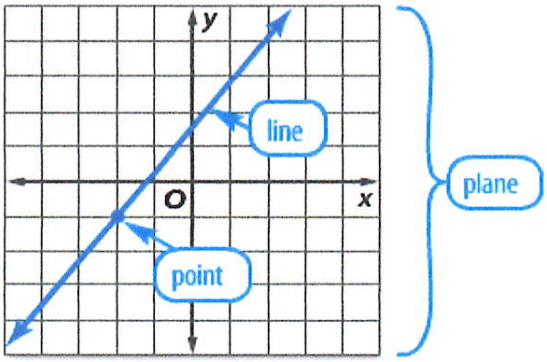
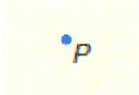
KEY

Points, Lines, and Planes classwork

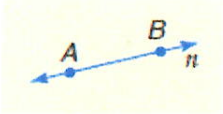


Terms in Geometry:

- **Point**: A particular location. Points have no size. They are named with 1 letter.



- **Line**: Lines extend indefinitely, and have neither thickness nor width.



- Please name the line above in three ways.

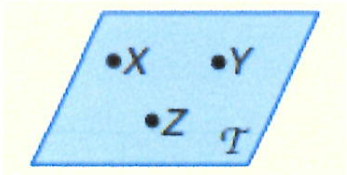
1) $\overleftrightarrow{AB}$

2) $\overleftrightarrow{BA}$

3) line n

- **Collinear**: points on the same line

- **Plane**: A flat, two-dimensional surface that extends indefinitely in all directions and having no thickness.



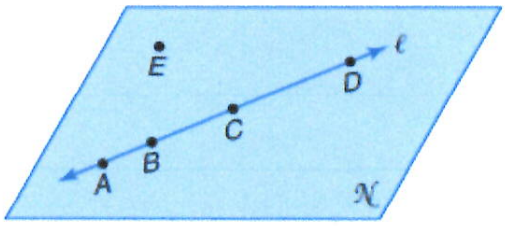
- Please name the plane above in two different ways.

1) plane T

2) XYZ (or XZY, YXZ, ...)

- **Coplanar** : points on the same plane

Ex #1: Please use the figure to name each of the following.



a) A line containing point *A* $\overleftrightarrow{AB}$ (or $\overleftrightarrow{AC}$, $\overleftrightarrow{BC}$, line ℓ...)

b) A plane containing point *C* plane N

c) A point collinear with points *A* and *C*. D or B

Ex #2: Name the geometric shape modeled by each object (either point, line, or plane).

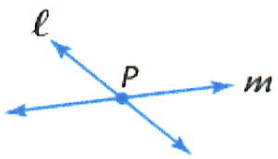
a) a 10×12 patio plane

b) a telephone wire line

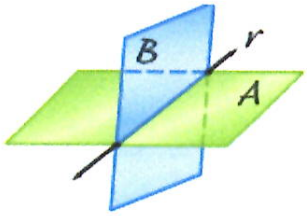
c) a star in the sky point

Intersections of Lines and Planes:

The ***intersection*** of two geometric figures is the set of all points they have in common.

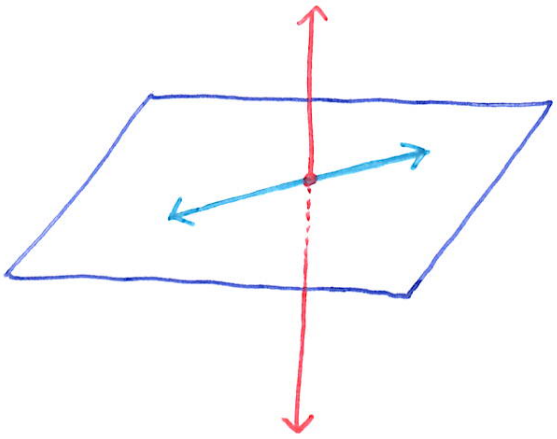


P represents the intersection of lines ℓ and m.



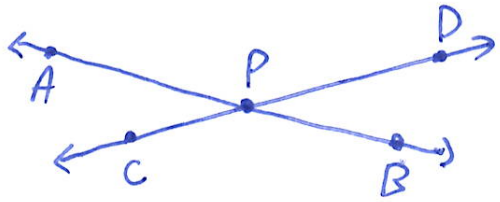
Line r represents the intersection of planes A and B.

Ex#3: Please draw a plane. Then, draw one line on the plane. Finally, draw a second line *through* the plane, that intersects the first line. (Like a pencil through a sheet of paper.)

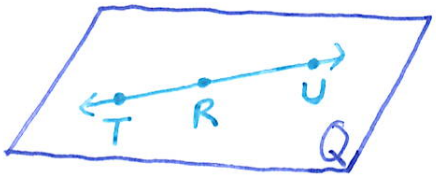


Ex #4: Please draw and label a figure for each relationship.

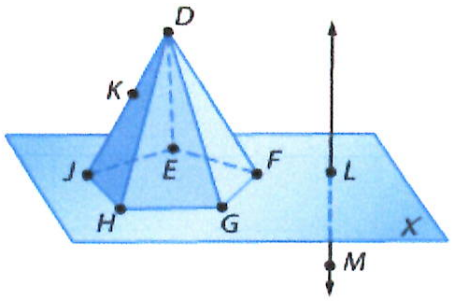
a) Lines $\overleftrightarrow{AB}$ and $\overleftrightarrow{CD}$ intersect at point *P*.



b) $\overleftrightarrow{TU}$ lies in plane Q and contains point *R*.



Ex#5: Please refer to the figure below to answer the following questions.



a) How many planes are pictured in the figure?
(Hint: the base of the pyramid is the same plane as plane *X*.)

6 (5 faces of the pyramid + 1 base)

b) Name three colinear points.

D, K, J

c) Name the intersection of plane HDG and plane *X*.
(Hint: it's a line segment)

$\overline{HG}$

d) At what point does line $\overleftrightarrow{LM}$ and plane *X* intersect?

L

e) Do lines $\overleftrightarrow{JH}$ and $\overleftrightarrow{DG}$ intersect?

no, even when they extend on.