Lesson 1

Points, Lines, and Planes

Undefined terms used in Geometry
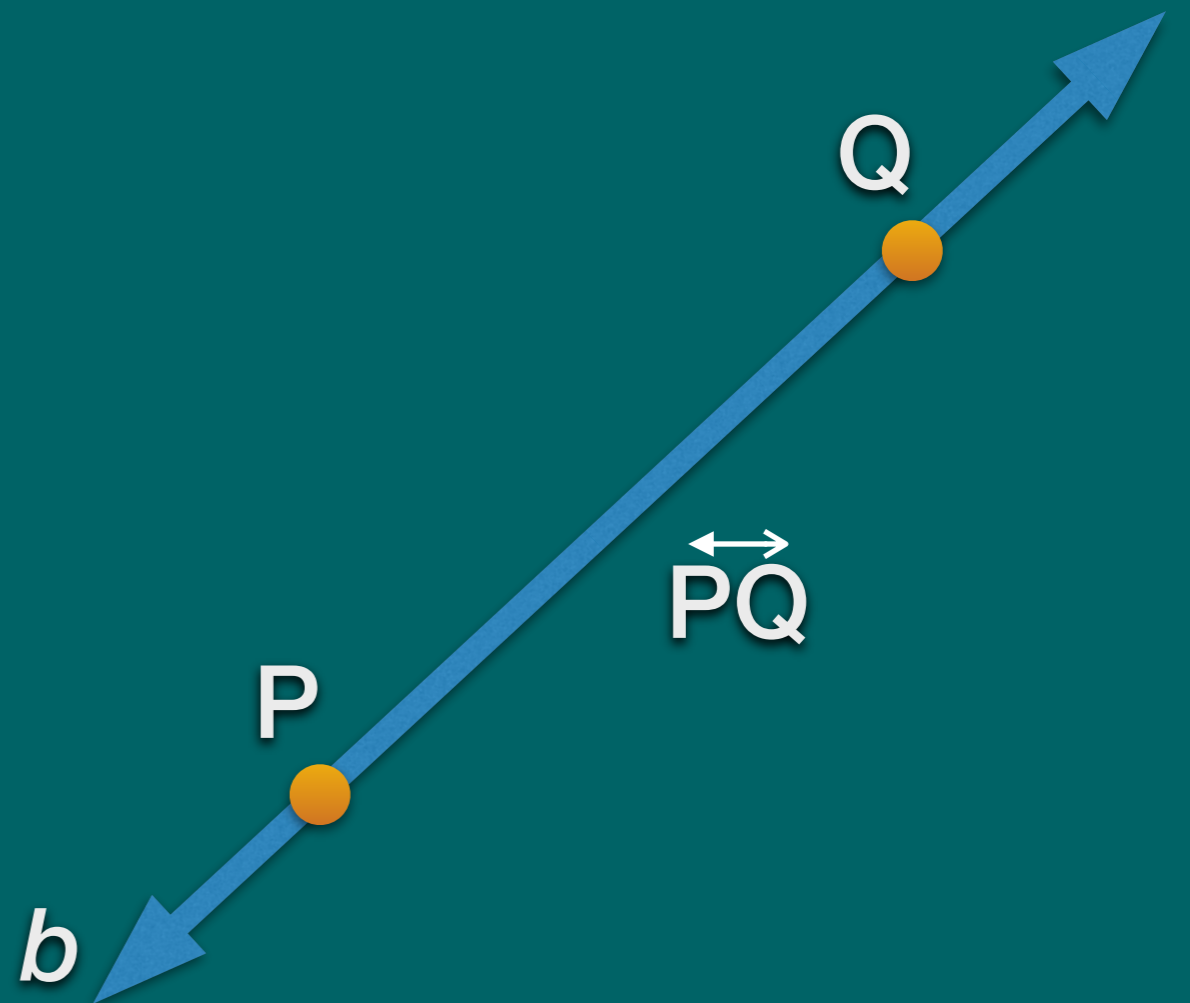
1. point

2. line

3. plane

Point

- used to show position

- has no dimensions
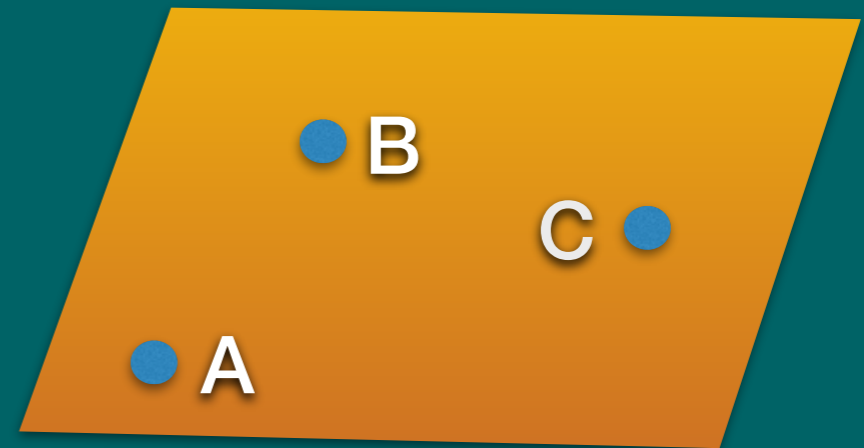
- named using a capital letter

A

Line

- always straight

- has one dimension (length only)

- extends indefinitely in both directions (indicated by arrows)

- Ways to name the line:
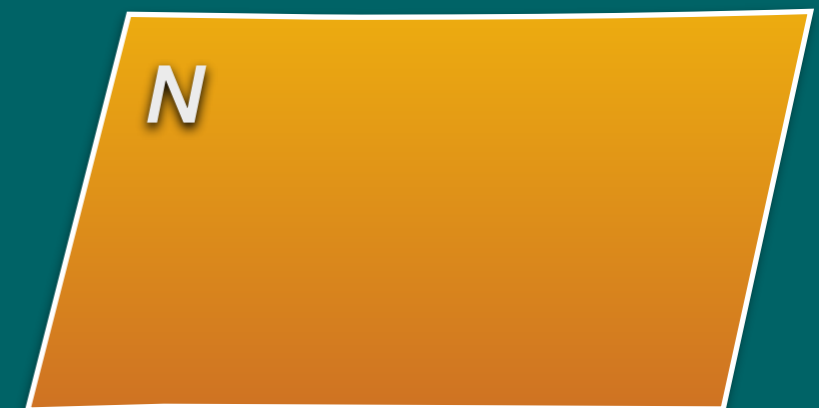
  - line *b*

  - line PQ

  - $\overleftrightarrow{PQ}$

Q

$\overleftrightarrow{PQ}$

P

b

Plane

- always flat

- has two dimensions (length and width)

- extends indefinitely in two directions

B

C

A

Ways to name a plane

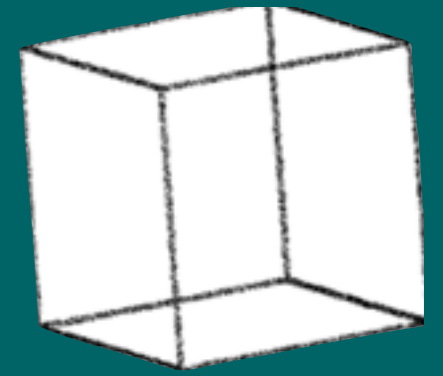- using 3 noncollinear points
- plane ABC

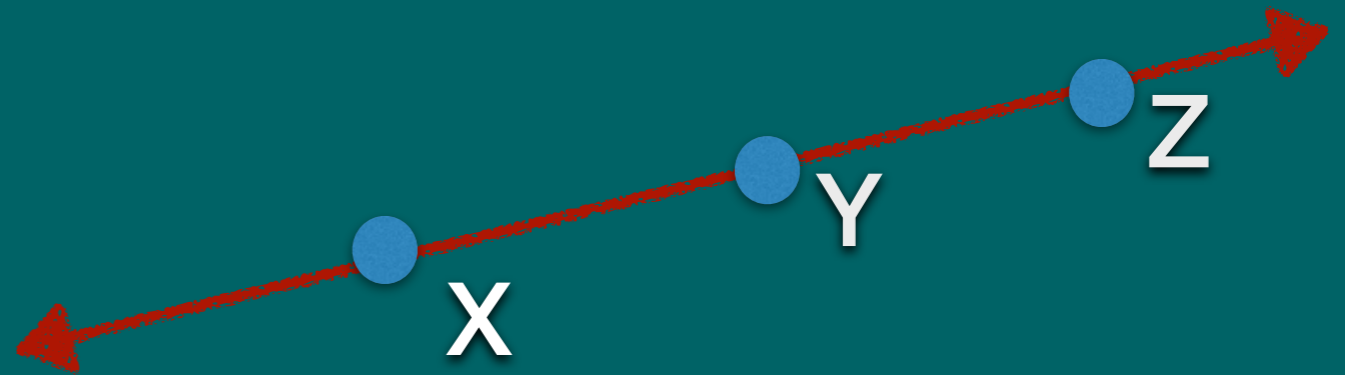- using a capital letter written in any corner

- plane *N*

N

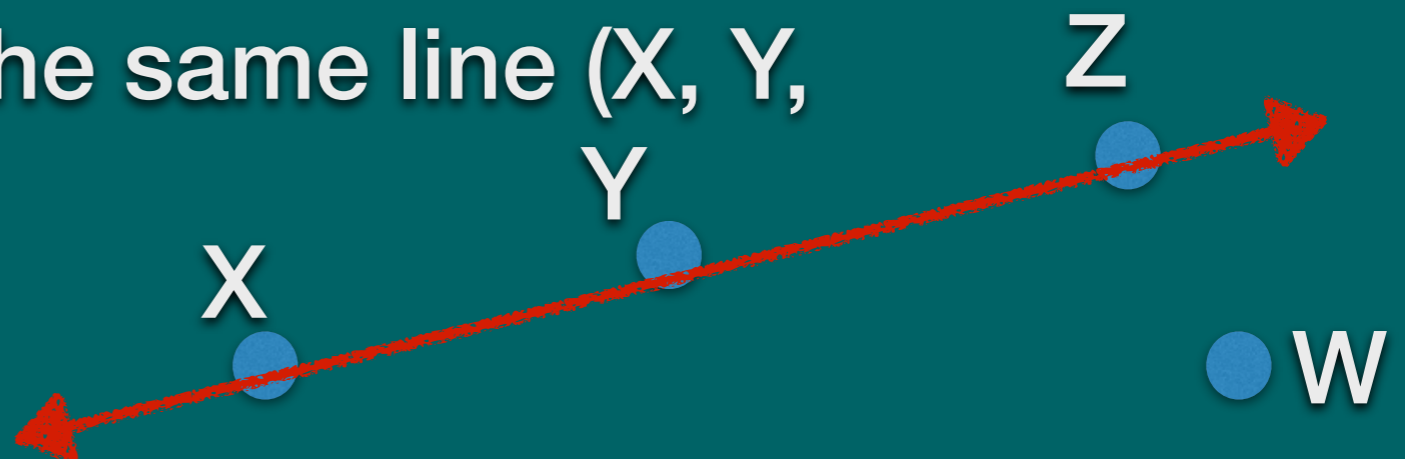Now we can use the terms point, line, and plane to define other terms

Space

- the set of all points

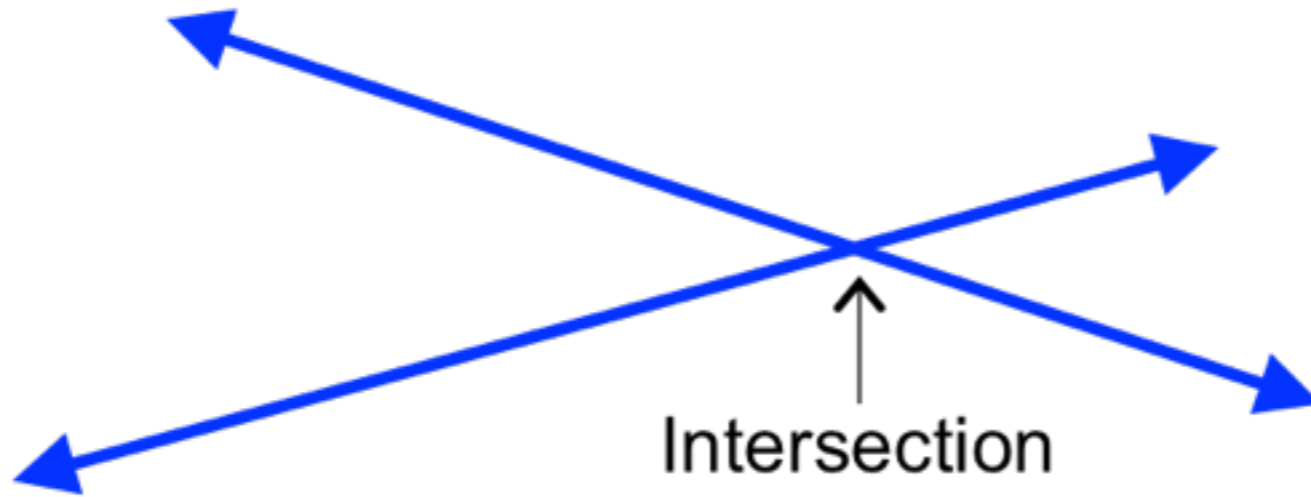- has 3 dimensions (length, width, and height)
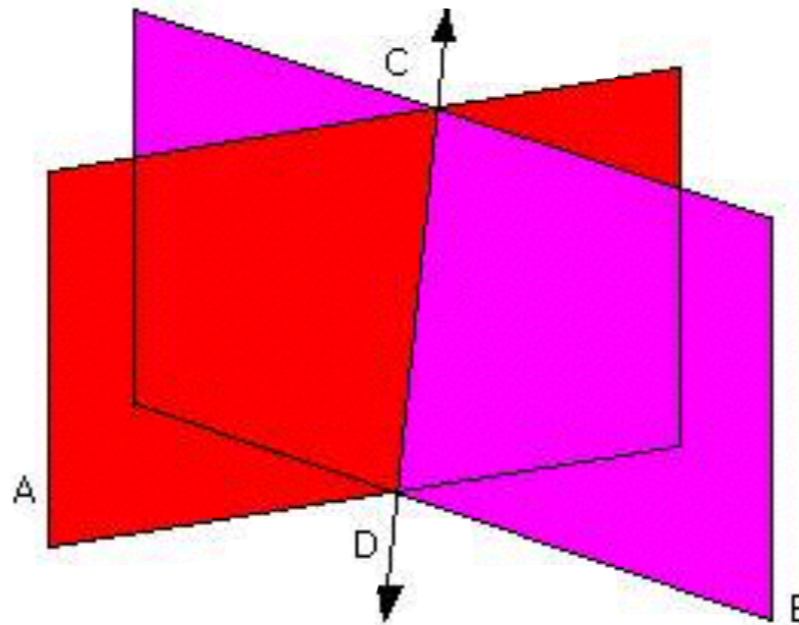
collinear: on the same line (X, Y, and Z)

Z

Y

X

noncollinear: not on the same line (X, Y, Z and W)

Z

Y

X

W

Intersection

Intersection

The intersection of two lines is a point.

The intersection of two planes is a line.