Building Blocks of Geometry

I. "Undefined" Terms

1.) Point A specific spot. (on a plane)

Small / has no size

0 dimensions

Name: Capital Letter (A)

2.) Line Connects 2 points. Doesn't stop.

No thickness

1 dimension

Name: $\overleftrightarrow{AB}$ m l

3.) Plane Has points and lines. Flat surface.

2 dimensions

Name: use 3 points in plane ABC

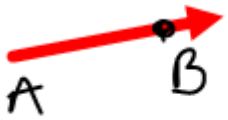
P M

1.) Segment (or "Line Segment")

$\overline{AB}$

Part of a line between 2 points.

2.) Ray (not a drop of golden sun)



$\overrightarrow{AB}$

A part of line starting at a point and extends forever in a direction.

3.) Angle

2 rays connecting at the same endpoint, (but not a line)

4.) Collinear Points

Points on the same line.

5.) Coplanar Points

Points on the same plane.

III. Postulates

Something obvious

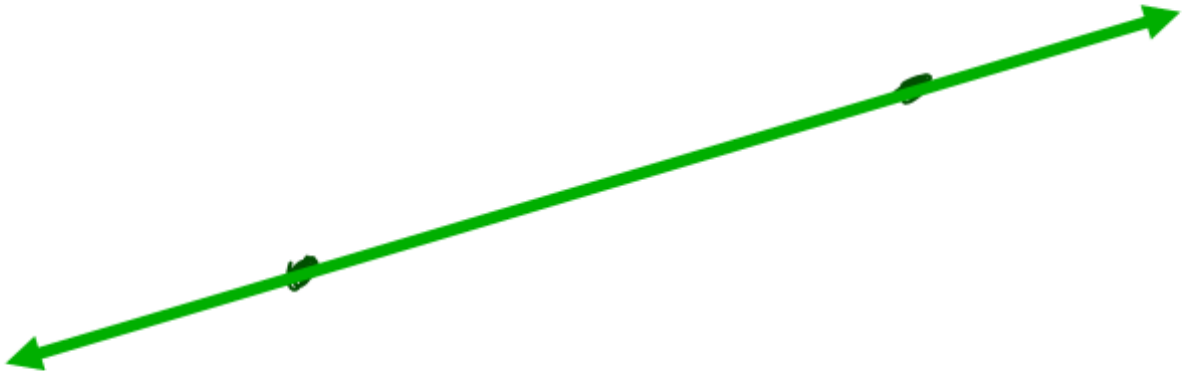
1.) Two lines intersect to form a Point

2.) Two planes intersect to form a Line

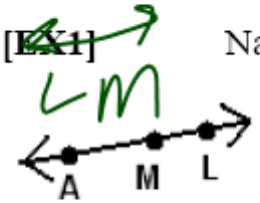
3.) Through any two points there is exactly one Line

4.) Through any three non-collinear points there is exactly one Plane

5.) If you take two points in a plane, then the line containing those points must be in the same plane

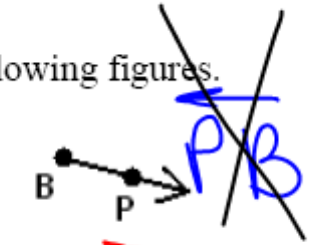


[EX1] Name the following figures.



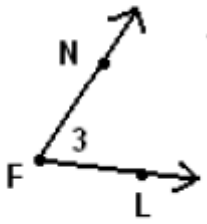
$\angle M$

$\overleftrightarrow{AL}$



~~$\overleftrightarrow{PB}$~~

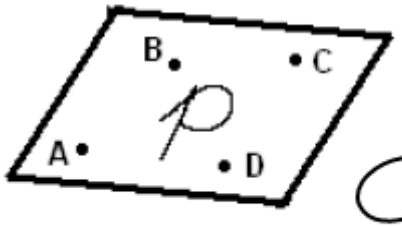
$\overrightarrow{BP}$



$\angle NFL$

$\angle F$

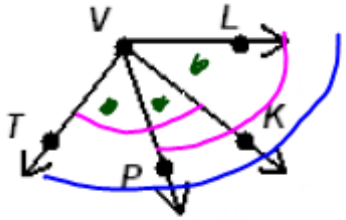
$\angle 3$



$\mathcal{P}$

CBD

[EX2] How many different angles are there in each figure? Name them!

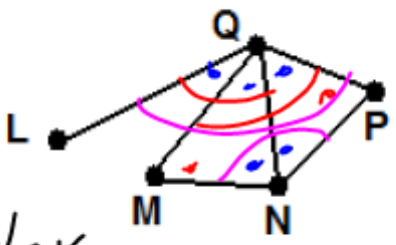


6

$\angle TVP$ $\angle TVK$ $\angle TVL$

$\angle PVK$ $\angle PVL$

$\angle KVL$



11

By Vertex

$\underline{L}$

$\angle$

$\underline{M}$

$\angle QMN$

$\underline{N}$

$\angle MNQ$ $\angle MNP$

$\angle QNP$

$\angle LQP$

$\underline{P}$

$\angle QPN$

$\underline{Q}$

$\angle LQM$

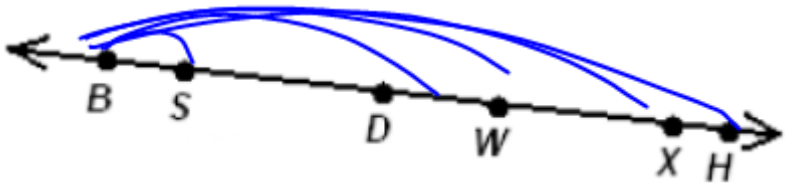
$\angle MQN$

$\angle NQP$

$\angle LQN$

$\angle MQP$

[EX3] How many different segments are there in the figure? Name them!



$\overline{BS}$ $\overline{SD}$ $\overline{DW}$ $\overline{WX}$ $\overline{XH}$

$\overline{BD}$ $\overline{SW}$ $\overline{DX}$ $\overline{WH}$

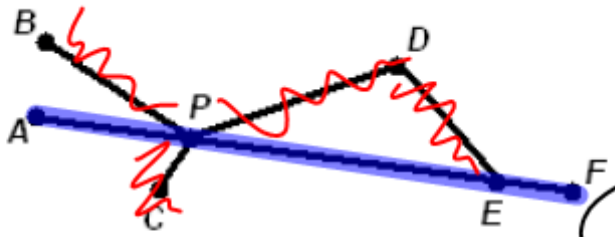
$\overline{BW}$ $\overline{SX}$ $\overline{DH}$

$\overline{BX}$ $\overline{SH}$

$\overline{BH}$

15

[EX4] **(A)** State all line segments in the figure.
(Assume if segments look straight the points are collinear.)



$\overline{AP}$ $\overline{PE}$ $\overline{EF}$ $\overline{PC}$ $\overline{AE}$ $\overline{PF}$ $\overline{PB}$ $\overline{AF}$ $\overline{PD}$ $\overline{DE}$

(B) What is the probability that a randomly chosen line segment in the figure contains point F?

$\frac{3}{10}$

$\frac{6}{10} = \frac{3}{5}$