Points, Lines, and Planes

Here we go. This is where it all starts...

These are the fundamental building blocks of Geometry. Without them, life would be pointless... and lineless too. Let's check them out.

Point: A point is a location in space. Not necessarily outer space, just anywhere. A point is just a spot. A point actually has no size whatsoever. It's a way to say "hey right here".... or "over there." We represent it with a dot.

• P

This is point P. Say hello!

If you want to talk about this point, do it like this. "Hey, did you hear who P asked to the dance?" Notice I didn't write "point." I just wrote the "P." If you see a capital letter you say "Point P," even though the word "point" isn't there.

Let's say we have two points, A and B ("You should have thought, "point A and point B"). Well, if we have two points then we have something else... a line. A <u>line</u> is a set of points that go through two given points and extends infinitely in opposite directions. Like this...

A
B

This line looks like it is about 3in long. This is not actually true, because it has arrows on the ends of it that means it extends forever. This is actually the longest line ever drawn... not too bad huh? We call this $\overleftrightarrow{AB}$. We say, "line A B." Notice that it has arrows on the symbol. That separates it from the next one...

Line Segment: a line segment or simply "segment" is a part of a line. So this one actually is a couple of inches long. Notice that it doesn't have arrows on the ends.

B
A
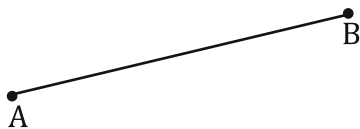
This is segment AB. We write $\overline{AB}$.

Segments are used all the time... be familiar with them.

Ray: no not your Uncle Ray. A ray starts at one point and extends infinitely in only one direction. Like if you started out in a rocket ship you would start from earth, and assuming you had enough rocket fuel, just flew on forever. You can also consider this as half a line, but that is kind of abstract.

B
A
Ray AB, $\overrightarrow{AB}$

C
D
Ray DC, $\overrightarrow{DC}$

F
E
Ray EF, $\overrightarrow{EF}$
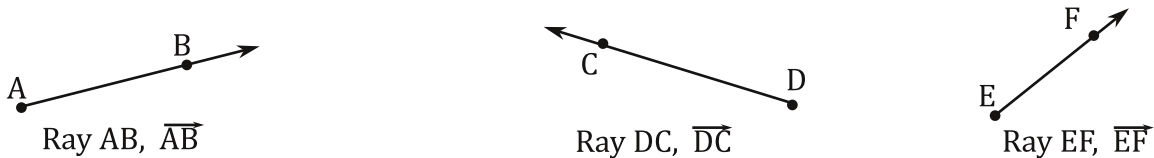
A ray is always named with its starting point on the left. and the arrow going right. For example, the middle one is NOT $\overrightarrow{CD}$ (this is actually a different ray starting at C and going through D) or $\overline{CD}$. Rays are rarely used in most problems past the basics, but you should know about them.

A plane is a two dimensional surface that extends in all directions. Like if you took just your desk top and even then just the very surface of it and extended it forever in all directions. We show this like this...

A
B
C
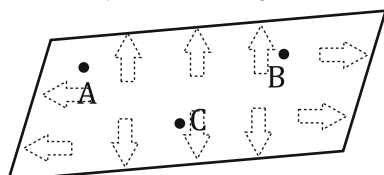
A plane is defined by 3 points. This is plane ABC. There is no symbol universally used for plane.

6

For these, write the figures name and its notation....

1.

Ray AB, $\overrightarrow{AB}$

2.

3.

E ——————— F

4.

• G

5.

6.

7.

8.

• I

9.

10.

11.

12.

13.

•U

14.

15.

16.

17.

18.

7