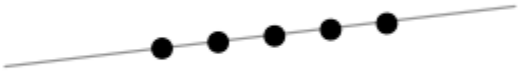
Name: _____ Date: _____ Math 9/10 Honors

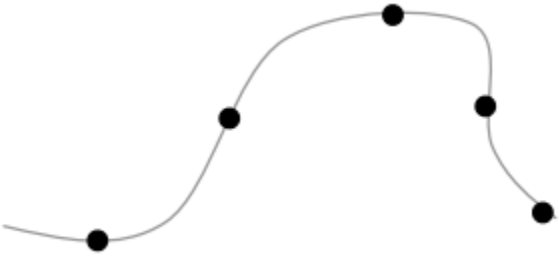
Lesson 2.1 – Welcome to Geometry!

I. Points, Lines, and Planes

The most basic figure in geometry: • This is called a _____. It is represented by a dot, but in reality, has no _____ or _____. Points are named with _____ letters! Every geometric figure is made up of points!

Two different types of arrangements of points are shown below. A group of points that "line up" together like the left arrangement is called _____.



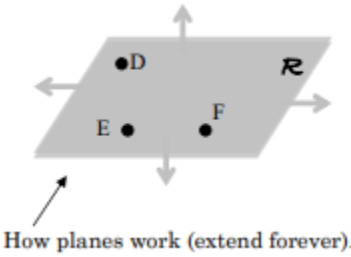


The second basic figure in geometry is a _____. It is a series of points that extend forever in two directions. We use _____ at the end of the line to save time and space.

There are two ways to name lines:

1.
2.

The third basic figure in geometry is called a _____. This is the name for a flat surface with no thickness that extends forever in all directions.



How planes work (extend forever).

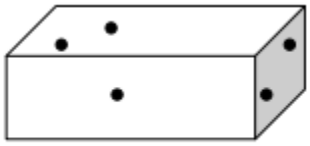
There are two ways to name planes.

1.
2.

1. Determine whether the set of points below are colinear, coplanar, or none of the above.

Set #1:

Set #2:



II. Intro to Propositional Logic

An _____ is a statement regarded to be self-evident, accepted, and true. In geometry, we use the word _____ to refer to these kinds of statements.

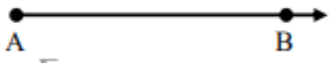
1. Using your pencil, verify the following statements to be fact.
   (a) **Postulate:** Through any two points, there is exactly one straight line between them.

   (b) **Postulate:** If two lines intersect and are not the same line, then they intersect at exactly one point.

   (c) **Postulate:** If two planes intersect and are not the same plane, then they intersect at exactly one line.

III. Segments, Rays, and Parallel Lines & Planes

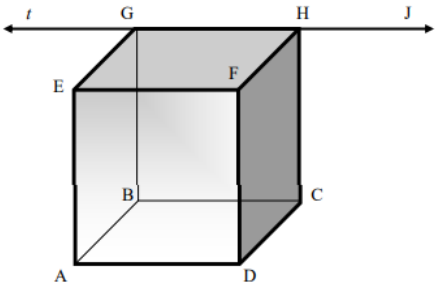
Lines that do not intersect are called _____ lines. Similarly to planes that do not intersect are also called _____ planes.



A line with one endpoint is called a _____. Rays are written from endpoint to the next point. The ray on the left is named _____.

A line with two endpoints is called a _____. The line segment on the left can be named _____ or _____.

2. The figure below shows the connection between line *t* and a cube.



(a) Name a pair of parallel planes.

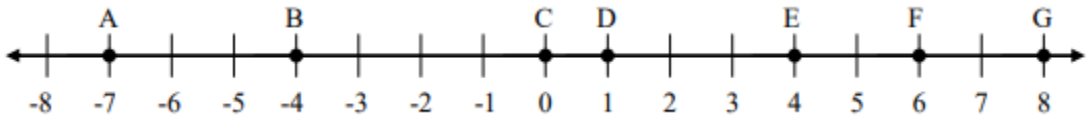
(b) Name a pair of parallel lines.

(c) Name a pair of skew lines. (Parallel but not coplanar)

(d) Name a ray.

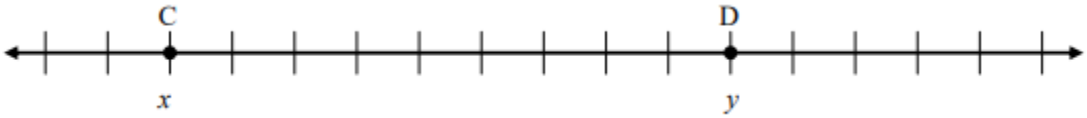
IV. Segment Measurement

The number line can be viewed as several connected line segments.



3. Find the length of each segment:

AB = _____ BG = _____ BE = _____ BA = _____ CF = _____ DF = _____ DG = _____

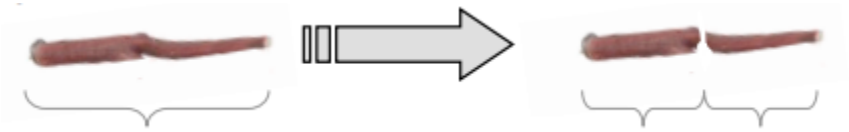


4. Find the length of segment CD. _____

Two segments that have the same length are said to be _____, indicated by the symbol _____.

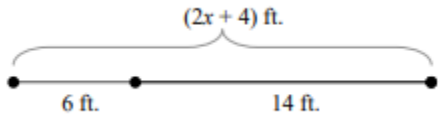
Congruent figures have the same size and shape. Tick marks indicate congruent segments.

Pretend I had a stick:

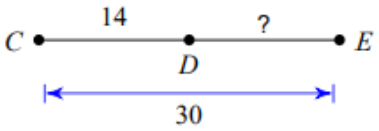


I can break the stick any way I want, but the pieces have to add together to make the original stick. Does this seem like a self-evident, accepted and true fact? This illustrates the _____.

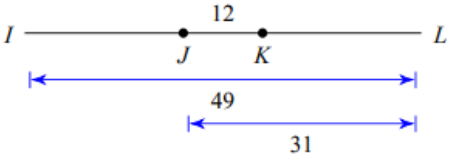
5. Solve for x.



6. Solve for DE.



7. Solve for IK.



V. Introducing Angles

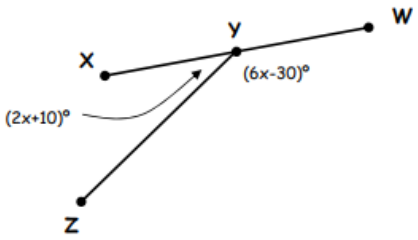
Two rays connected together at a single endpoint are called an angle.

Draw and describe the following:

Angle Type	Draw an Example	Definition
Acute Angle		
Obtuse Angle		
Right Angle		
Straight Angle		
Complementary Angles		
Supplementary Angles		

The **Angle Addition Postulate** states that when two angles are placed side by side, the resulting angle is the sum of the two original angles.

8. Use the figure below to solve for $m\angle WYZ$.



9. In the figure below, $m\angle ABC = 43 + x$. Find x.