

Warmup 1/ $\left(\frac{909}{101}\right)$

Created by Mr. Lischwe

(Use the same warmup sheet as last week. You should have one day on it already.)

1. Create a goal for this 9 weeks and then tape it to the #goals cabinet.
2. When you finish 1), continue working on your Parking Lot posters. You have until 10:25. GO!

Go over Parking Lot Strategies...

OBJECTIVE:  
UNDERSTAND THE  
BASICS OF GEOMETRY  
(16.1 AND 16.2)

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WHAT IS THE DIFFERENCE  
BETWEEN A POINT, A LINE,  
AND A PLANE?

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## Undefined Terms

- Point, line, and plane are undefined terms. We call them this because they are the most basic terms in Geometry.
- They cannot be defined using other terms.

## Points, Lines, Planes

pg. 775

- A **point** is a specific location. It has no dimension and is represented by a dot.

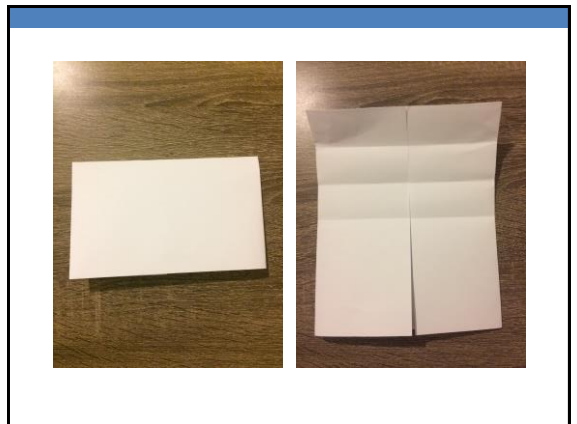
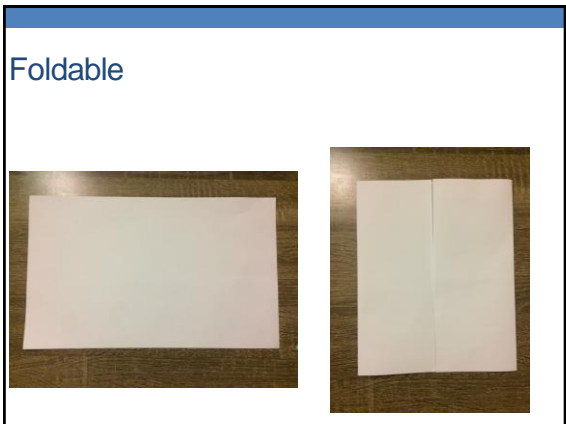
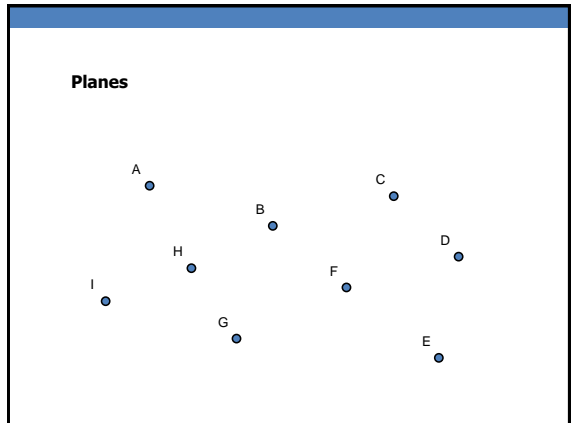
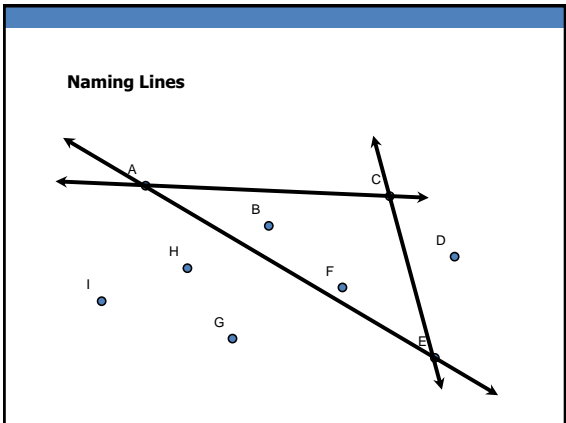
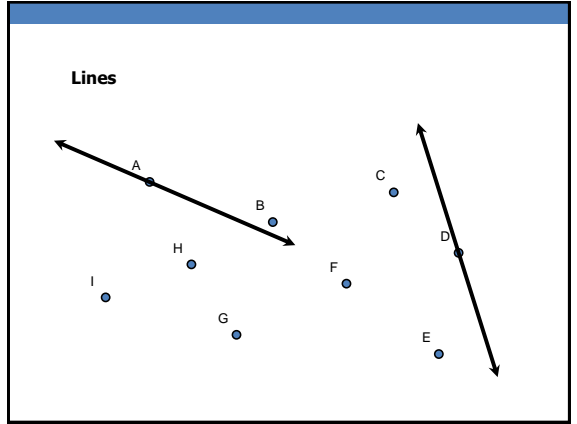
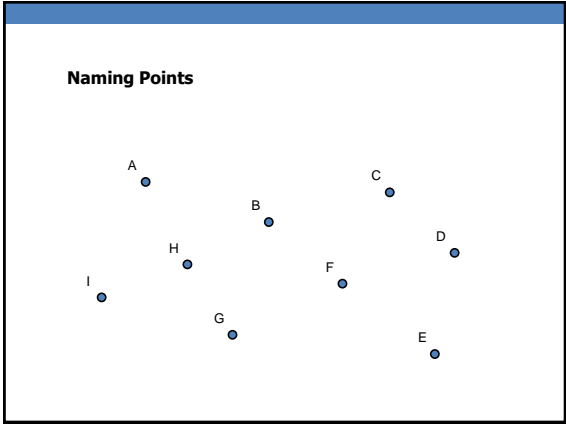


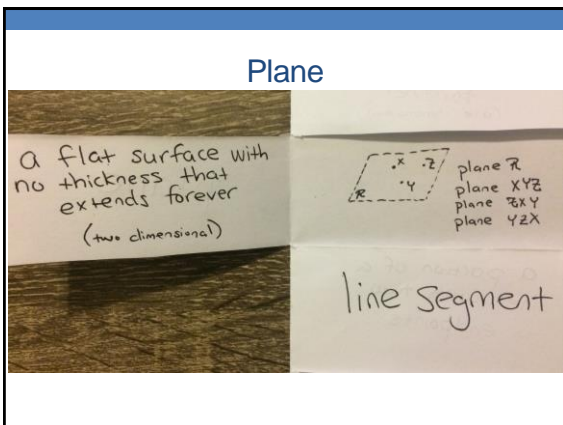
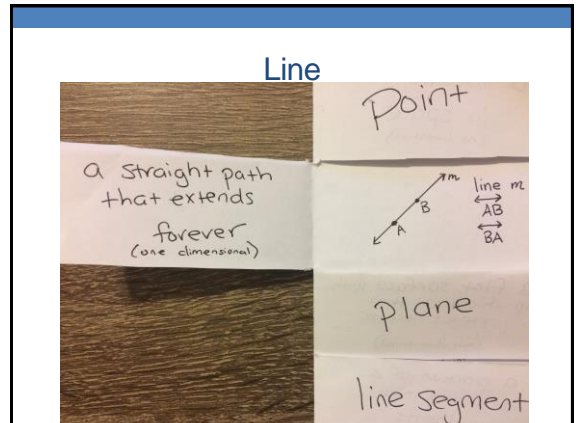
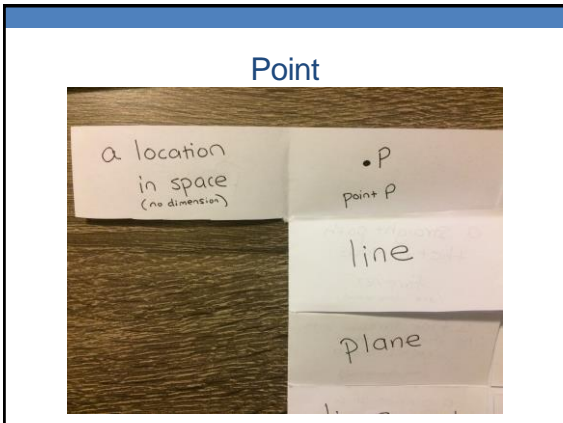
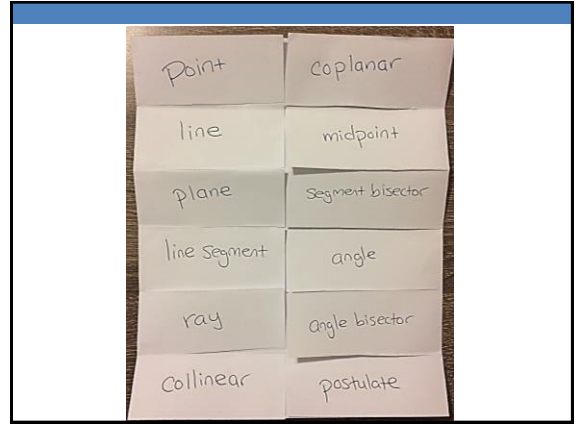
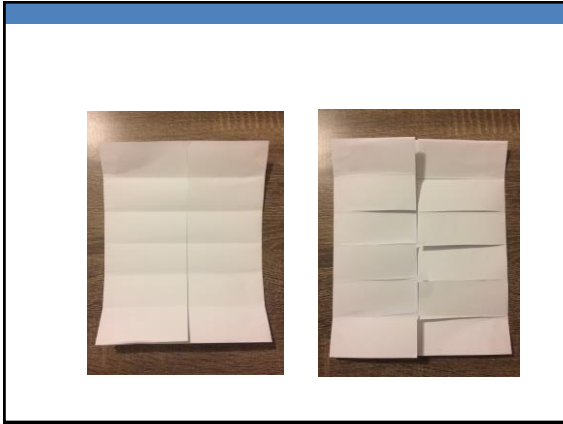
- A **line** is a connected straight path. It has no thickness and it *continues forever* in both directions.



- A **plane** is a flat surface. It has no thickness and it *extends forever* in all directions.



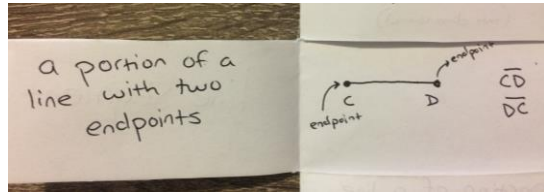




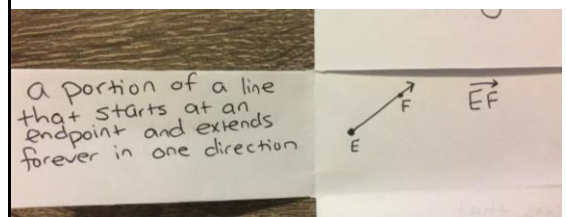
### Defined Terms

- Now that we know what undefined terms are, what are defined terms?
- What is classified as a defined term?
- Defined terms are terms that are defined by undefined terms.

## Line Segment



## Ray



## Quick Reflection

- Is  $\overrightarrow{KJ}$  the same as  $\overrightarrow{JK}$  ?

## Homework

- pg. 785 (17-21)

**NEED  
TEXTBOOK  
TODAY!!!**

Created by Ana Boero

## Warmup 1/(Messi's number)

(This is still week 1 warmups. We are combining this week and last week.)

- 1) Come up with as many names as you can for this line:



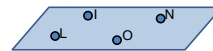
- 2) Come up with as many names as you can for this segment: (the whole thing)



- 3) Come up with as many names as you can for this ray:



- 4) (Challenge) How many possible names for this plane are there?



17. Name two different rays in the figure.      18. Name three different segments in the figure.

$\vec{DE}$  (or  $\vec{DF}$ ) and  $\vec{EF}$        $\overline{DE}$  (or  $\overline{ED}$ ),  $\overline{EF}$  (or  $\overline{FE}$ ), and  $\overline{DF}$  (or  $\overline{FD}$ )

Sketch each figure.

19. two rays that form a straight line and that intersect at point P

20. two line segments that both have a midpoint at point M

21. Draw and label a line segment,  $\overline{JK}$ , that is 3 inches long. Use a ruler to draw and label the midpoint M of the segment.

### Collinear

points that lie on the same line

Ray

K, L, and M are collinear

### Coplanar

T, U, and V are coplanar

points that lie on the same plane

midpoint

**ON THE BACK OF YOUR FOLDABLE:**

**Congruent segments** are segments that have the same length. In the diagram,  $PQ = RS$ . **Tick marks** are used in a figure to show congruent segments.

Tick marks

$\overline{PQ} \cong \overline{RS}$   
means "segment PQ is congruent to segment RS"

- If two NUMBERS are the same: equal

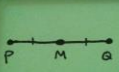
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- If two GEOMETRIC FIGURES are the same: congruent

≅

### Midpoint

Coplanar



point M is the midpoint of  $\overline{PQ}$   
 $PM = MQ$   
 "the length of  $PM$ "

point that divides a segment into two segments of equal length

Segment bisector

### Segment Bisector

Midpoint



line  $l$  bisects  $\overline{PQ}$

A line, ray, or other figure that passes through the midpoint of a segment

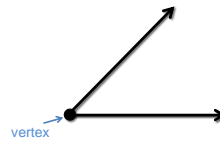
angle

## WHAT IS AN ANGLE?

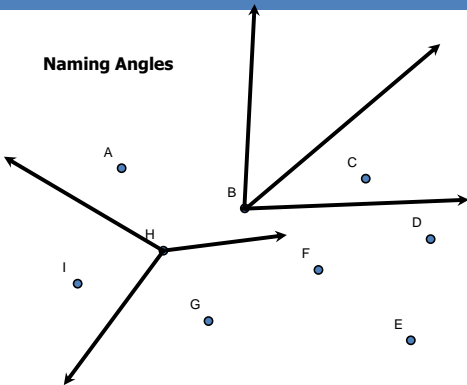
pg. 790

### Angles

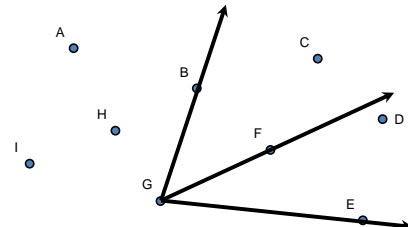
- An **angle** is a figure formed by two rays with the same endpoint.
- The common endpoint is called the **vertex** of the angle. The rays are the sides of the angle.

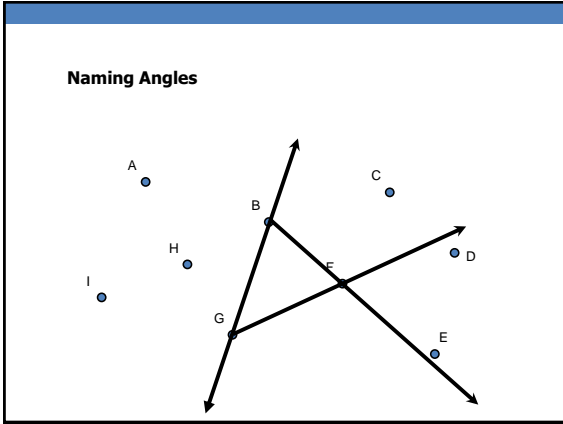


### Naming Angles



### Naming Angles





### Angle

Segment bisector

$\angle ABC$   
 $\angle CBA$   
 $\angle B$

vertex must be in the middle when you name angles!

acute right obtuse

A figure formed by two rays with the same endpoints. The common endpoint is called the vertex of the angle. The rays are the sides of the angle.

Angle bisector

### Give Four Ways to Name this Angle

pg. 790

### Write the different ways you can name the angles in the diagram.

$\angle RTQ$ ,  $\angle STR$ ,  $\angle 1$ ,  $\angle 2$

### A Distinction!

$\angle ABC$  refers to the **angle itself**.

$m\angle ABC$  refers to the **measurement** of the angle.

### Measuring Angles

pg. 791

- The **measure** of an angle is usually given in degrees. Since there are  $360^\circ$  in a circle, one **degree** is  $1/360$  of a circle.
- We can use **protractors** to measure angles.

Let's play with protractors!

Construct a 50 degree angle.  
 Construct a 35 degree angle that faces up like a v.  
 Construct a 120 degree angle.

pg. 791

**Types of Angles**

Acute Angle	Right Angle	Obtuse Angle	Straight Angle
Measures greater than 0° and less than 90°	Measures 90°	Measures greater than 90° and less than 180°	Formed by two opposite rays and measures 180°

On back of foldable!

**Congruent angles** are angles that have the same measure. In the diagram,  $m\angle ABC = m\angle DEF$ . **Arc marks** are used to show that the two angles have equal measures.

**$\angle ABC \cong \angle DEF$**   
 means "Angle ABC is congruent to angle DEF"

pg. 792

### Angle Bisector

An **angle bisector** is a ray that divides an angle into two congruent angles.

$\vec{JK}$  bisects  $\angle LJM$ ; thus  $m\angle LJK = m\angle KJM$ .

### Angle Bisector

angle

$\vec{JK}$  bisects  $\angle LJM$   
 $m\angle LJK = m\angle KJM$   
 $b$  is the measure of angle  $LJK$

A ray that divides an angle into two congruent angles.

Postulate

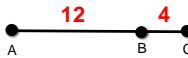
### Postulate

(see back)

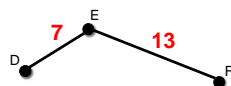
a statement that is accepted without proof



• What is AC?



• What is DF?

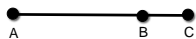


• If three points are collinear, then the lengths of the two shorter segments equals the length of the larger segment.

### Segment Addition Postulate pg. 777

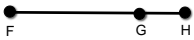
Let A, B, and C be collinear points. If B is between A and C, then  $AB + BC = AC$

Notice: this means the length of segment  $\overline{AB}$  plus the length of segment  $\overline{BC}$  equals the length of segment  $\overline{AC}$

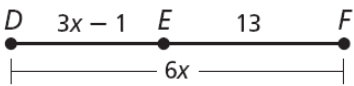


**G is between F and H,  $FG = 6$ , and  $FH = 11$ . Find  $GH$ .**

$FH = FG + GH$     *Seg. Add. Postulate*  
 $11 = 6 + GH$     *Substitute 6 for FG and 11 for FH.*  
 $\underline{-6 \quad -6}$     *Subtract 6 from both sides.*  
 $5 = GH$     *Simplify.*




**E is between D and F. Find DF.**



$x = 4$   
 $DF = 24$

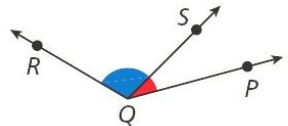
**S is the midpoint of RT. Find RS, ST, and RT.**



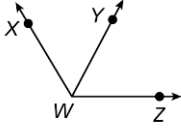
$RS = 4$      $ST = 4$      $RT = 8$

### Angle Addition Postulate pg. 792

• If S is in the interior of  $\angle PQR$ , then  $m\angle PQR = m\angle PQS + m\angle SQR$ .



$m\angle XWZ = 121^\circ$  and  $m\angle XWY = 59^\circ$ . Find  $m\angle YWZ$ .

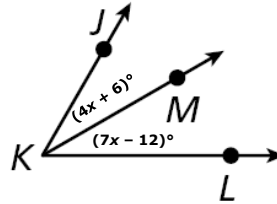


$$m\angle YWZ = m\angle XWZ - m\angle XWY \quad \angle \text{Add. Post.}$$

$$m\angle YWZ = 121^\circ - 59^\circ \quad \text{Substitute the given values.}$$

$$m\angle YWZ = 62^\circ \quad \text{Subtract.}$$

$\overrightarrow{KM}$  bisects  $\angle JKL$ .  
Find  $m\angle JKM$ .



$$m\angle JKM = 30^\circ$$

## Homework

•Pg. 795 (4-11, 15, 16, 20-22, 25)