

Name: \_\_\_\_\_ # \_\_\_\_\_

Geometry: Period \_\_\_\_\_

Ms. Pierre

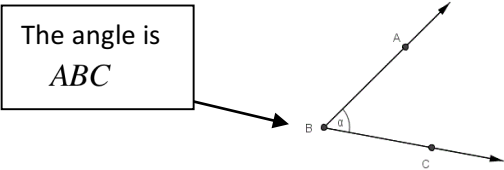
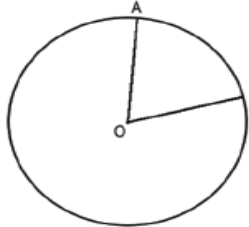
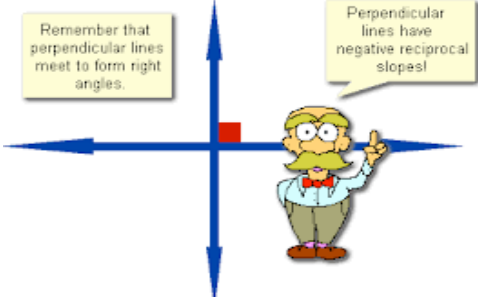
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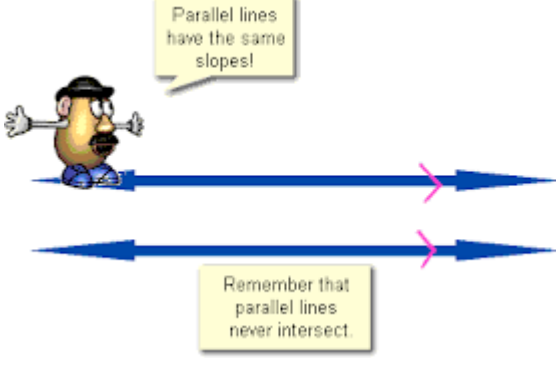
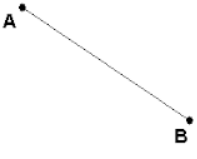
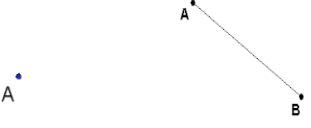
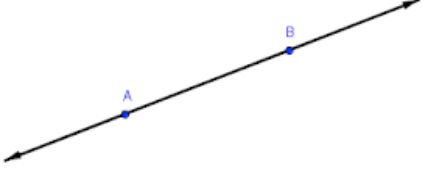
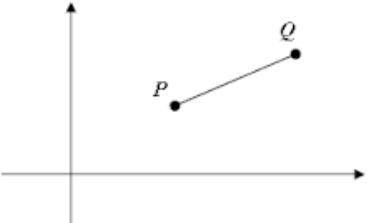
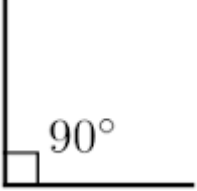
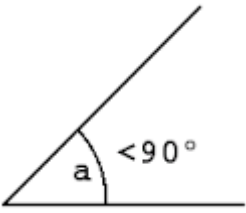
## Transformations in the Coordinate Plane: Defining Terms

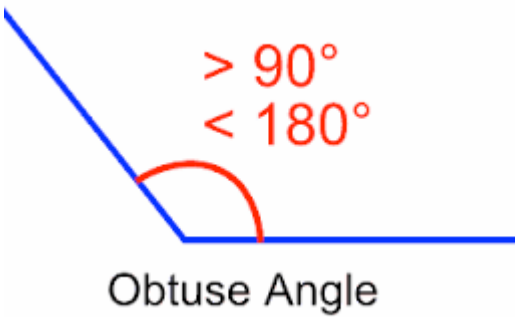
### Today's Objective

KWBAT know precise definitions of angle, circle, perpendicular line, parallel line, and line segment, based on the undefined notions of point, line, distance along a line, and distance around a circular arc.

### Vocabulary

Term	Describe	Example
Angle		<p>The angle is <math>ABC</math></p> 
Circle		
Perpendicular Line		

<p>Parallel Line</p>		
<p>Line Segment</p>		
<p>Point</p>		 <div data-bbox="1388 829 1518 913" style="border: 1px solid black; padding: 2px; display: inline-block;">       Point A or Point B     </div>
<p>Line</p>		
<p>Distance along a line</p>		
<p>Right Angle</p>		
<p>Acute Angle</p>		

Obtuse Angle		 <p data-bbox="1068 485 1341 535">Obtuse Angle</p>
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**☑ Check for Understanding**

Marta wants to draw a perfect circle on canvas, but her compass is broken. She decides to take a shoelace from one of her sneakers and a pushpin from her drawing desk. She ties the shoelace around a pencil and then pins the other end of the shoelace into the center of the canvas. Marta then stretches the shoelace out until it's pulled tight, and places the pencil point on the canvas. Keeping the shoelace straight, she moves the pencil around the canvas and begins to draw out a circle.

1. Will Marta's approach to drawing a perfect circle work?

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Why or why not?

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2. How could Marta show that the drawing is or is not a perfect circle?

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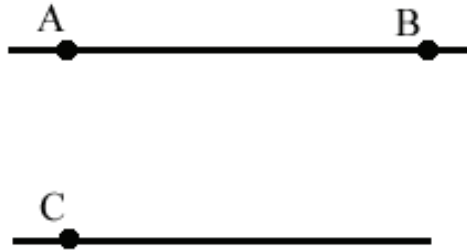
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## Example 1

Refer to the figures below. Can a line segment be defined using the points  $A$  and  $B$ ? Can a line segment be defined using the point  $C$ ? Justify your response to each question.



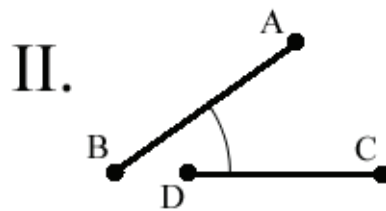
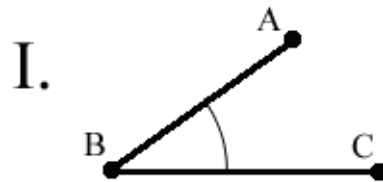
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## Example 2

Refer to the figures below. In the first, do the line segments  $\overline{AB}$  and  $\overline{BC}$  form an angle? In the second figure, do the line segments  $\overline{AB}$  and  $\overline{CD}$  form an angle? Justify your response to each question.



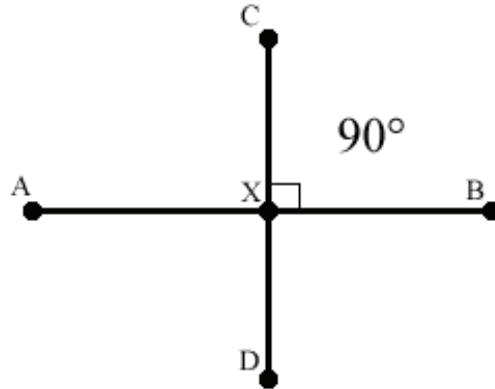
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### Example 3

By definition,  $\overline{AB}$  is perpendicular to  $\overline{CD}$  because  $m\angle CXB$  is  $90^\circ$ . What are the measures of  $\angle AXC$ ,  $\angle AXD$ , and  $\angle DXB$ ?



### Example 4

Given the following:

$$\overline{AC} \cong \overline{BD}$$

$$\overline{WY} < \overline{XZ}$$

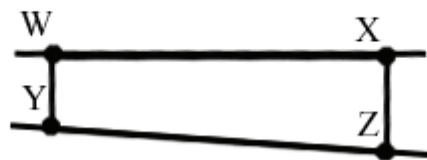
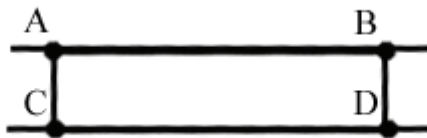
$$\overline{AB} \perp \overline{AC}$$

$$\overline{WX} \perp \overline{WY}$$

$$\overline{AB} \perp \overline{BD}$$

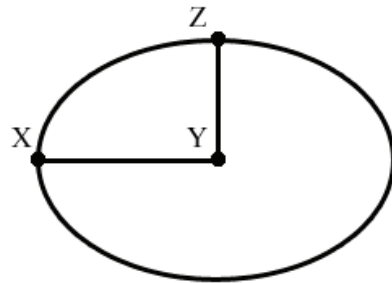
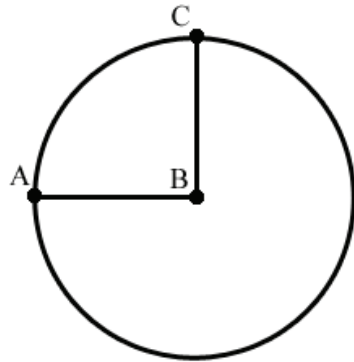
$$\overline{WX} \perp \overline{XZ}$$

Are  $\overline{AB}$  and  $\overline{CD}$  parallel? Are  $\overline{WX}$  and  $\overline{YZ}$  parallel? Explain.



### Example 5

Refer to the figures below. Given  $\overline{AB} \cong \overline{BC}$ , is the set of points with center  $B$  a circle? Given  $\overline{XY} > \overline{YZ}$ , is the set of points with center  $Y$  a circle?



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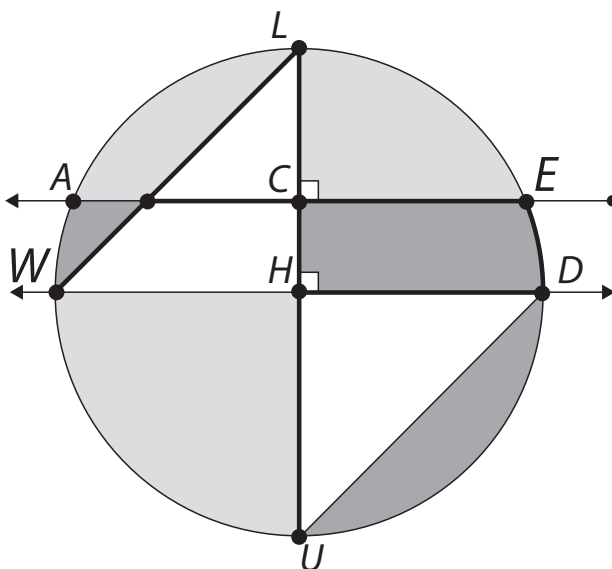
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## Guided Practice

Walch Education contracted Ryan Icons to design a logo for the company. They requested the logo be circular and contain the following elements:

- a line
- a ray
- a line segment
- 2 pairs of parallel lines
- 1 pair of perpendicular lines

Identify the elements requested in the submitted logo shown below.



Line \_\_\_\_\_

Ray \_\_\_\_\_

Line segment \_\_\_\_\_

2 pairs of parallel lines \_\_\_\_\_

1 pair of perpendicular lines \_\_\_\_\_

 **Independent Practice**

Use what you've learned to answer the questions that follow.

1. What is the part of a line with two endpoints  $P$  and  $Q$ ? How is it written?

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2. What is the definition of a circle?

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3. What is a term used to describe two line lines that intersect to form a right angle?

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4. What is the definition of a point?

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5. What type of angle has a measure that is greater than  $0^\circ$  but less than  $90^\circ$ ?

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 **Homework**

Use what you've learned to answer the questions that follow.

What term is used to describe two rays or two line segments that share a common endpoint?

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Two circular arcs,  $\widehat{AB}$  and  $\widehat{XY}$ , share the same center,  $O$ . The point  $A$  is on  $\overline{OX}$  and  $B$  is on  $\overline{OY}$ . What can be said about the relation of the lengths of  $\widehat{AB}$  and  $\widehat{XY}$ ?

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Two circular arcs,  $\widehat{AB}$  and  $\widehat{AC}$ , share the same center,  $O$ . The point  $B$  lies on the circle between the points  $A$  and  $C$ . What can be said about the relation of the lengths of  $\widehat{AB}$  and  $\widehat{ABC}$ ?

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What type of angle has a measure that is greater than  $90^\circ$  but less than  $180^\circ$ ?

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What is the term used to describe the set of points between two points  $P$  and  $Q$  in a plane and the infinite number of points that continue beyond them?

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