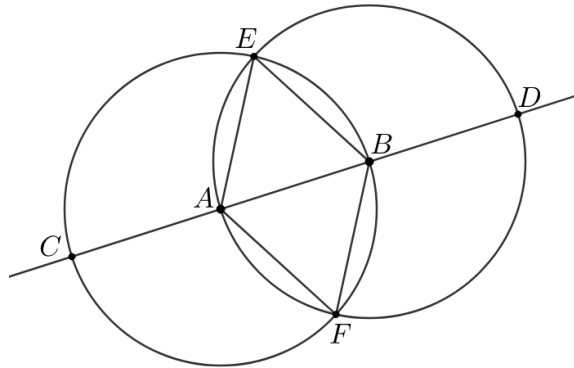


## Lesson 1.02 Patterns & Instructions

Geometry GT

### Recall

Here are 2 circles with centers  $A$  and  $B$ .



Based on the diagram, explain how you know each statement is true.

**A.** The length of segment  $\overline{AE}$  is equal to the length of segment  $\overline{BE}$

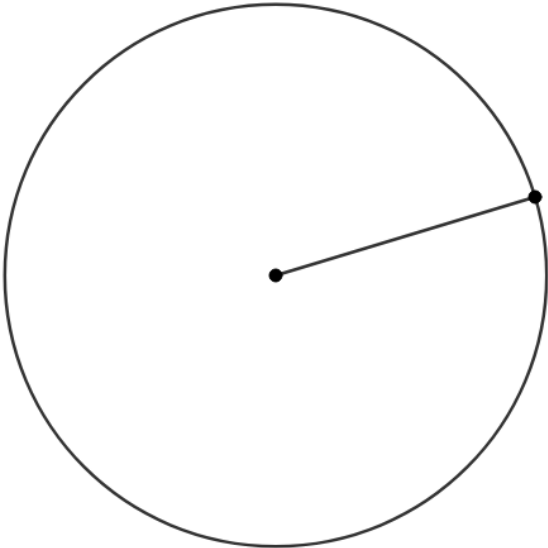
**B.**  $\triangle ABF$  is equilateral

**C.**  $AB = \frac{1}{3}CD$

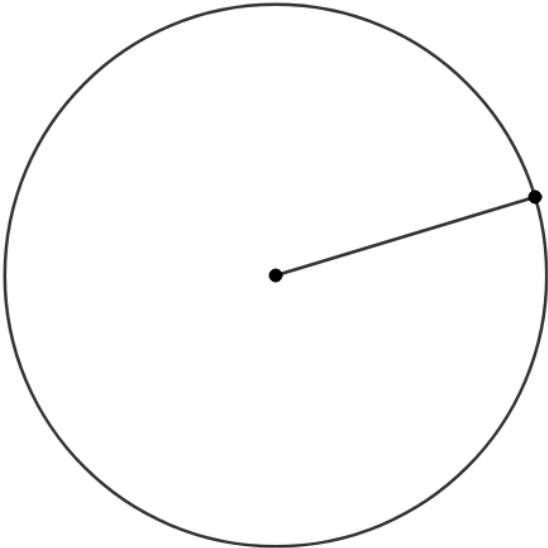
**D.**  $BC = AD$

### Explore

Use straightedge and compass moves to build your own pattern using the circle and radius as a place to start. As you make your pattern, record each move on a separate sheet of paper. Use precise vocabulary so someone can make a perfect copy without seeing the original. Include instructions about how to shade/color your pattern.



Follow someone else's instructions precisely to recreate their pattern.



## Discuss

What was difficult about following someone's instructions?

What changes would you make about the way you wrote your instructions to describe figures in geometry?

Were there any shapes or patterns that you were surprised could be made with straightedge and compass moves?

## Demonstrate

Follow the directions to construct an equilateral triangle.

**A.** Start with two points

**B.** Draw circles at both points



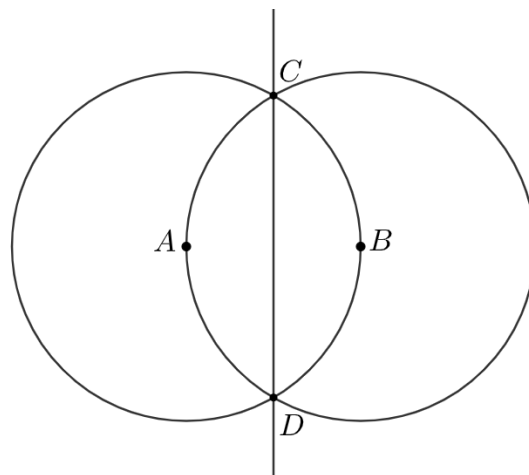
**C.** Mark a point on both circles

**D.** Draw lines between the points

How could these directions be improved? What information would be useful?

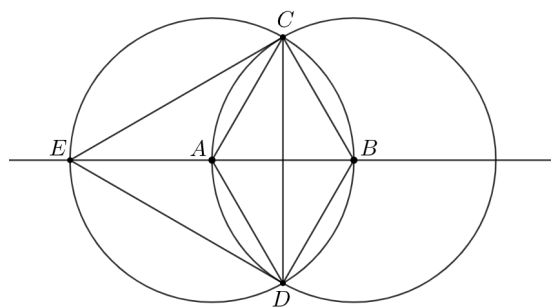
### Practice

1. This diagram was created by starting with points  $A$  and  $B$  and using only straightedge and compass to construct the rest. All steps of the construction are visible. Describe precisely the straightedge and compass moves required to construct the line  $\overleftrightarrow{CD}$  in this diagram?



2. In the construction,  $A$  is the center of one circle, and  $B$  is the center of the other. Identify **all** segments that have the same length as segment  $\overline{AB}$ .

- A.  $\overline{AC}$
- B.  $\overline{AE}$
- C.  $\overline{BC}$
- D.  $\overline{CD}$
- E.  $\overline{DE}$



3. This diagram was constructed with straightedge and compass tools.  $O$  is the center of one circle, and  $C$  is the center of the other. Select **all** line segments that *must* have the same length as segment  $\overline{OA}$ .

- A.  $\overline{OA}$
- B.  $\overline{OC}$
- C.  $\overline{AC}$
- D.  $\overline{AB}$
- E.  $\overline{BC}$

