



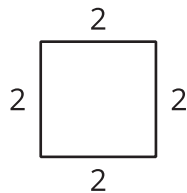
# Construction Techniques 5: Squares

Let's use straightedge and compass moves to construct squares.

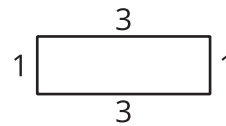
## 7.1 Which Three Go Together: Polygons

Which three go together? Why do they go together?

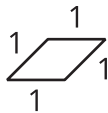
**A**



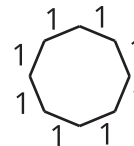
**B**



**C**



**D**



## 7.2

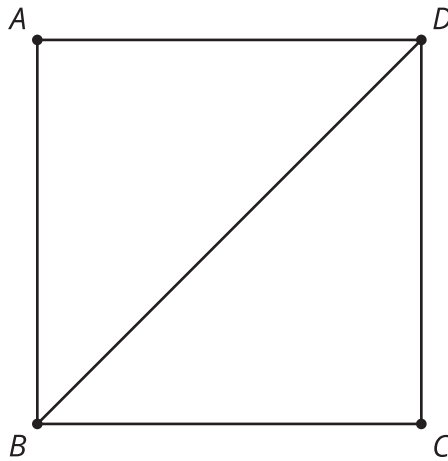
## It's Cool to Be Square

Use straightedge and compass moves to construct a square with segment  $AB$  as one of the sides.

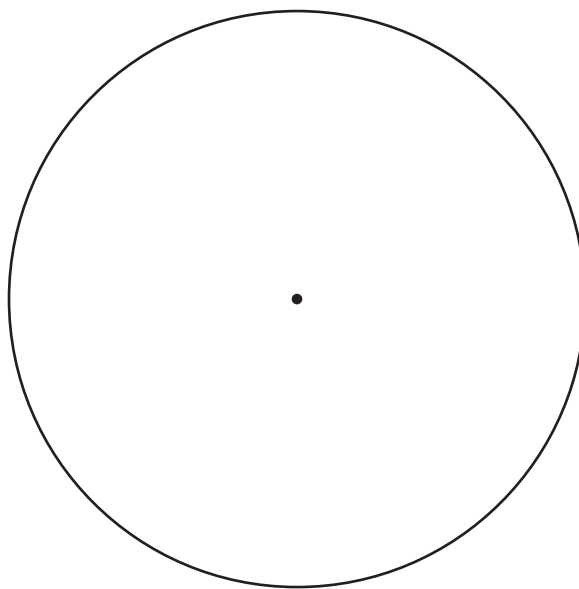


## 7.3 Trying to Circle a Square

1. Here is square  $ABCD$  with diagonal  $BD$  drawn:
  - a. Construct a circle centered at  $A$  with radius  $AD$ .
  - b. Construct a circle centered at  $C$  with radius  $CD$ .
  - c. Draw the diagonal  $AC$ , and write a conjecture about the relationship between the diagonals  $BD$  and  $AC$ .
  - d. Label the intersection of the diagonals as point  $E$ , and construct a circle centered at  $E$  with radius  $EB$ . How are the diagonals related to this circle?



2. Use your conjecture and straightedge and compass moves to construct a square inscribed in a circle.



 **Are you ready for more?**

Use straightedge and compass moves to construct a square that fits perfectly outside the circle so that the circle is inscribed in the square. There is now a square inscribed in the circle, and the circle is inscribed in another square. How do the areas of these 2 squares compare?

## Lesson 7 Summary

We can use what we know about perpendicular lines and congruent segments to construct many different objects. A square is made up of 4 congruent segments that create 4 right angles. A square is an example of a **regular polygon** since it is equilateral (all the sides are congruent) and equiangular (all the angles are congruent). Here are some regular polygons inscribed inside circles:

