



Construction Techniques 5: Squares

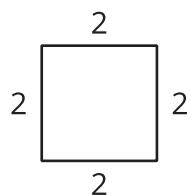
Let's use straightedge and compass moves to construct squares.

7.1

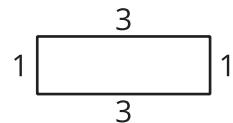
Which Three Go Together: Polygons

Which three go together? Why do they go together?

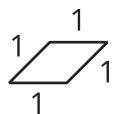
A



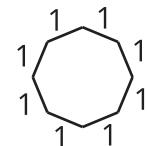
B



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.



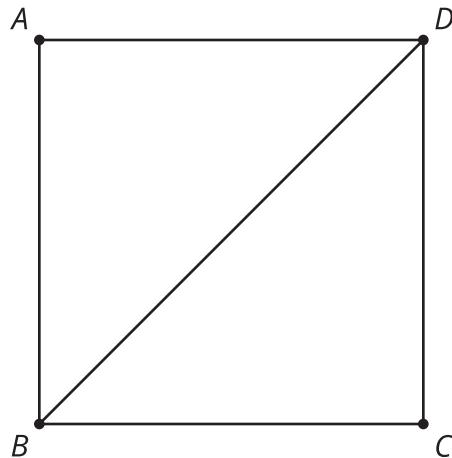
7.3

Trying to Circle a Square

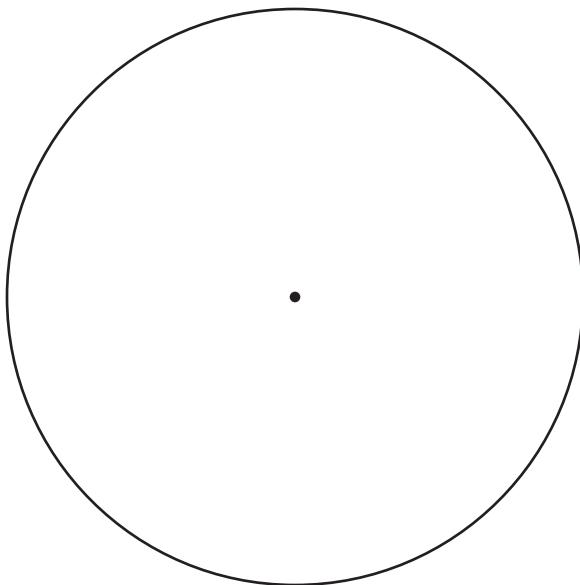
1. Here is square $ABCD$ with diagonal BD drawn:



- 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:

