Construction Techniques 5: Squares

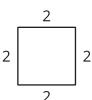
Let's use straightedge and compass moves to construct squares.

7.1

Which Three Go Together: Polygons

Which three go together? Why do they go together?

Α



В

C

D

$$1 \underbrace{1 \cdot 1}_{1 \cdot 1} 1$$



7.2 It's Cool to Be Square

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

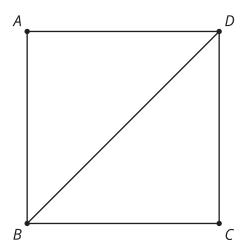




7.3

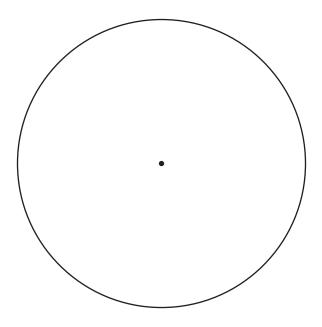
Trying to Circle a Square

- 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.



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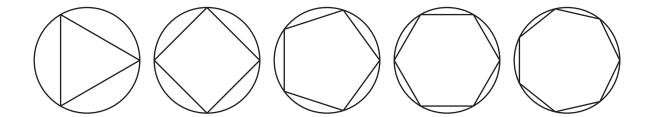
Are you ready for more?

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:





Lesson 7