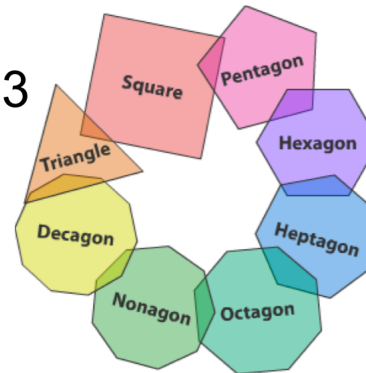


Unit 1 Lesson 4: Geometric Constructions 3 Constructing Polygons



We will learn how to:

- Construct a square & rectangle
- Construct an inscribed square in a circle
- Construct an inscribed regular octagon in a circle
- Construct an inscribed regular hexagon in a circle
- Construct an inscribed equilateral triangle in a circle

Example 1:

Construct a square with the given length:



Step 1: Extend the line given

Step 2: Construct a perpendicular line through the corner of the square (point B)

Step 3: Copy the length of the square and mark off the 3 other vertices of the square (put the point of your compass on A, B, and C)

Step 4: Connect the vertices to construct the square

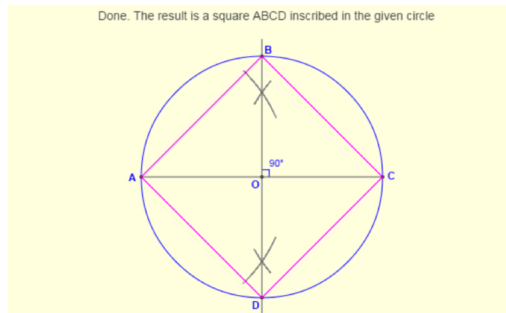
<http://mathopenref.com/constsquare.html>

Example 2:
Construct a rectangle with the given lengths:

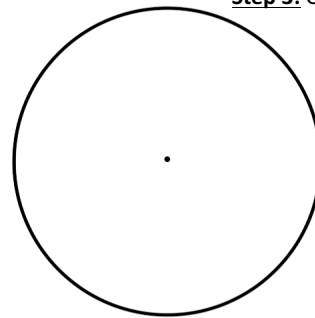


Follow same rules for the construction of a square, except make sure you measure the side lengths for the rectangle

Example 3:
Constructing a Square Inscribed in a Circle

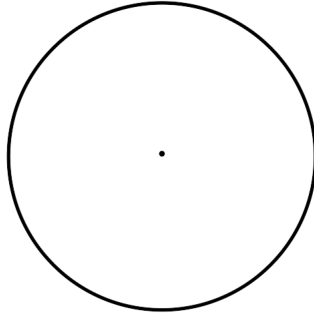


Step 1: Draw a diameter
Step 2: Bisect the diameter
Step 3: Connect the four vertices



<http://www.mathopenref.com/constinsquare.html>

Example 4:
Constructing a Regular Octagon Inscribed in a Circle

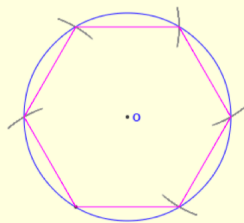
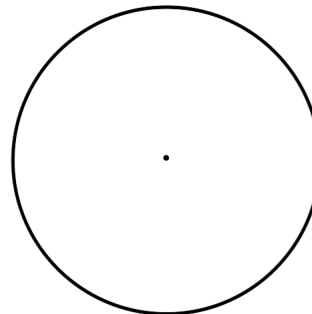


- Step 1:** Draw a diameter
Step 2: Bisect the diameter
Step 3: Perform an angle bisector construction on the 90 degree angles. This will divide the 4 quadrants into 8 equal sections.
Step 4: Connect the 8 vertices

Example 5:
Constructing a Regular Hexagon Inscribed in a Circle

6 sides

Done. The result is a hexagon inscribed in the circle

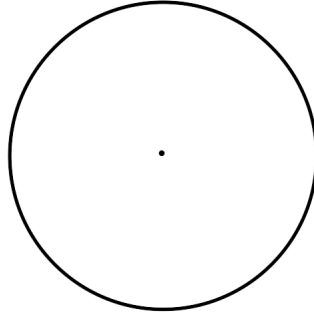
****Side length = length of radius**

- Step 1:** Pick a point on the circumference of the circle
Step 2: Copy the distance of the radius
Step 3: Mark off the 6 vertices around the circle
Step 4: Use a straightedge to connect the vertices

<http://mathopenref.com/constinhexagon.html>

Example 6:

Constructing an Equilateral Triangle Inscribed in a Circle



Same construction as a
hexagon, except only
connect 3 vertices