

Name: _____ # _____

Geometry: Period _____

Ms. Pierre

Date: _____

Constructions of Polygons

Today's Objective

SWBAT construct an equilateral triangle, a square and a regular hexagon, each inscribed in a circle.

Example 1

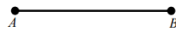
Hexagon Inscribed in a Circle

Step 1: Start by placing the needle on the point that is to be the center of the circle and the pencil on the other endpoint of the radius. Create the entire circle with the compass.

Step 2: With the compass still open to the exact length of the radius place the needle on the endpoint of the radius that is on the circle and with the pencil mark an intersection on the circle with a new arc.

Step 3: Leaving the compass still open to the same length move the needle to the new intersection point and mark another intersection point on the circle again. Continue repeating this process until you have made it all the way around the circle.

Step 4: The last mark should end right where you started with the needle. Then, connect each consecutive arc intersection with a segment.



Example 2

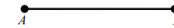
Triangle Inscribed in a Circle

Step 1: Start by placing the needle on the point that is to be the center of the circle and the pencil on the other endpoint of the radius. Create the entire circle with the compass.

Step 2: With the compass still open to the exact length of the radius place the needle on the endpoint of the radius that is on the circle and with the pencil mark an intersection on the circle with a new arc.

Step 3: Leaving the compass still open to the same length move the needle to the new intersection point and mark another intersection point on the circle again. Continue repeating this process until you have made it all the way around the circle.

Step 4: The last mark should end right where you started with the needle. Then, connect every other consecutive arc intersection with a segment.



Example 3

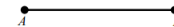
Square Inscribed in a Circle

Step 1: Start by placing the needle on the point that is to be the center of the circle and the pencil on the other endpoint of the radius. Create the entire circle with the compass.

Step 2: Line your straight edge up with the radius and extend the radius segment to create a diameter.

Step 3: Create a perpendicular bisector of the newly created diameter (see previous construction #3 if needed)

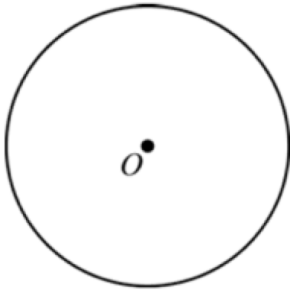
Step 4: Connect the each endpoint of the diameter with each endpoint of where the perpendicular bisector intersects the circle.



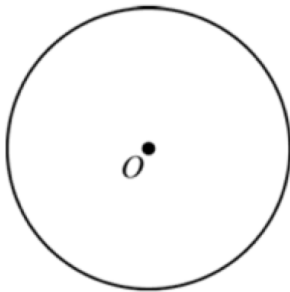


Guided Practice

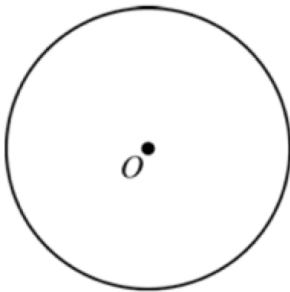
1. Construct a regular hexagon ABCDEF inscribed in circle O.



2. Construct equilateral $\triangle ABC$ inscribed in circle O.

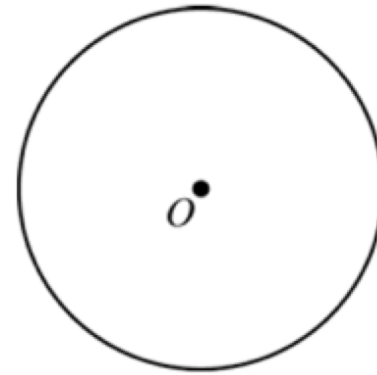


3. Construct square ABCD inscribed in circle O.

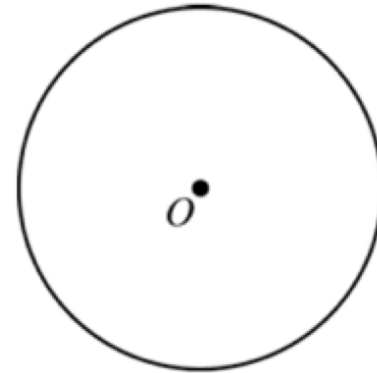


Independent Practice

1. Construct a regular hexagon ABCDEF inscribed in circle O.



2. Construct equilateral $\triangle ABC$ inscribed in circle O.



3. Construct square ABCD inscribed in circle O.

