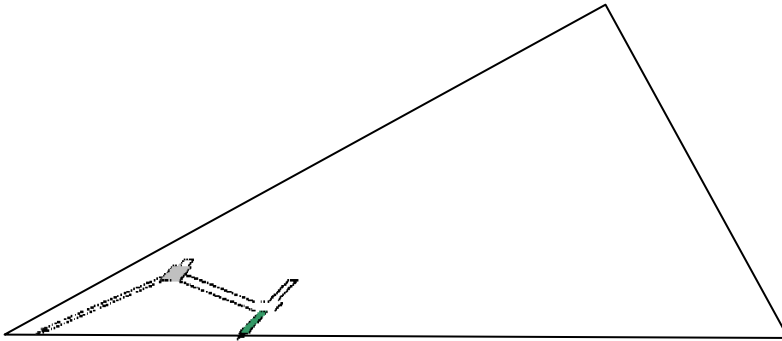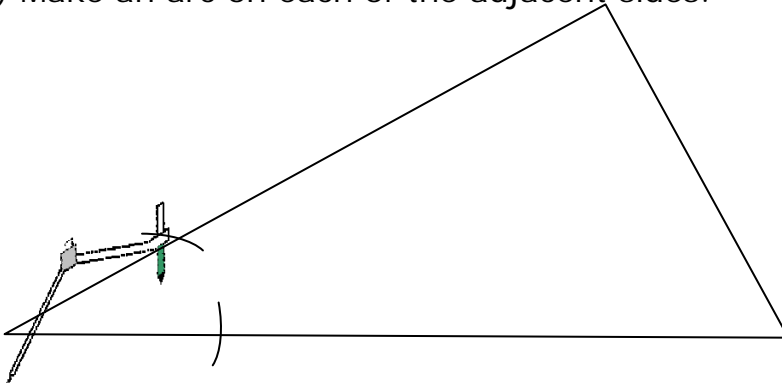## Inscribing Shapes in Circles- Guided Lesson Explanation

Explanation#1
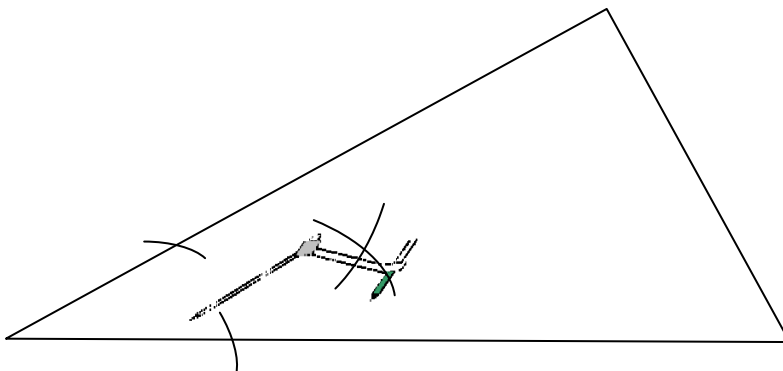
1) Put the point of the compass on any vertices of the triangle. The width of the compass is negligible, but I usually shot for at least a ¼ of the line.

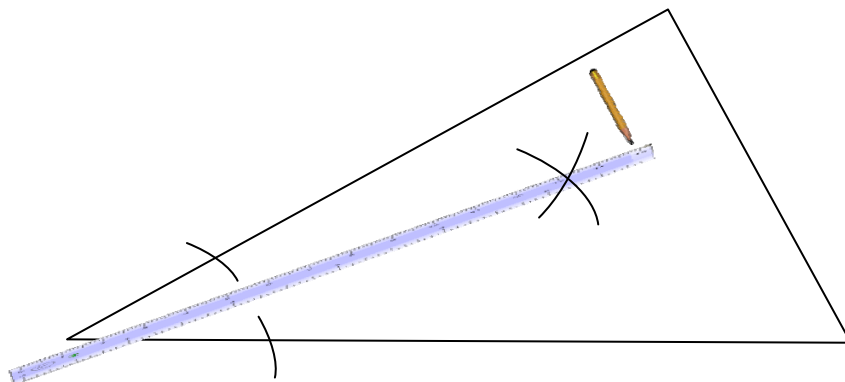2) Make an arc on each of the adjacent sides.

3) Increase the compasses width, just a bit. Place the compass point where each arc crosses the side and draw two crossing arcs inside the triangle.
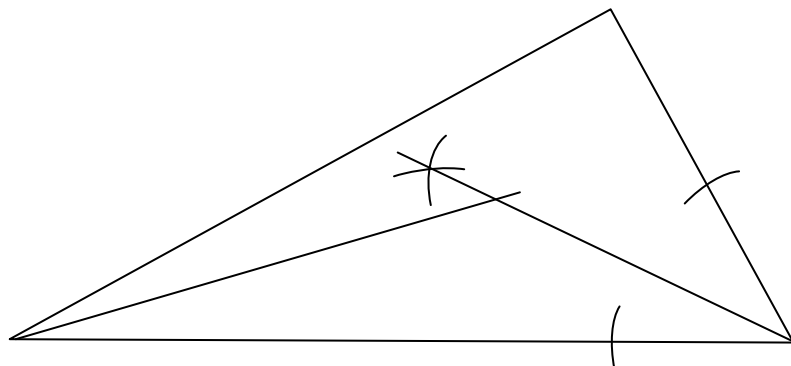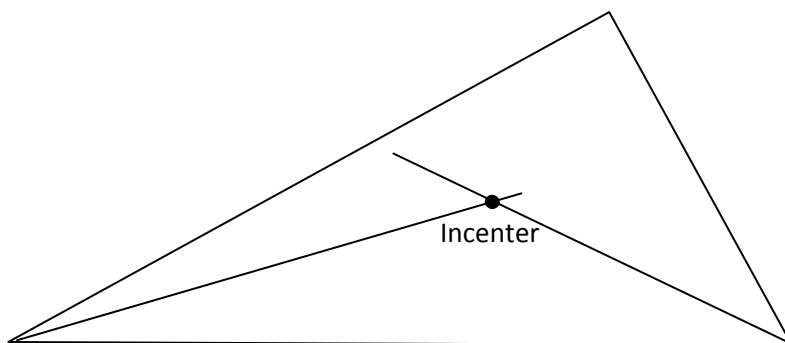
4**)** Get yourself a ruler and draw a line from the vertex of the triangle to the point where the two arcs cross.

5) Pick any other vertex of the triangle and repeat steps #1-4 off of that vertex. You will now have two new lines drawn.
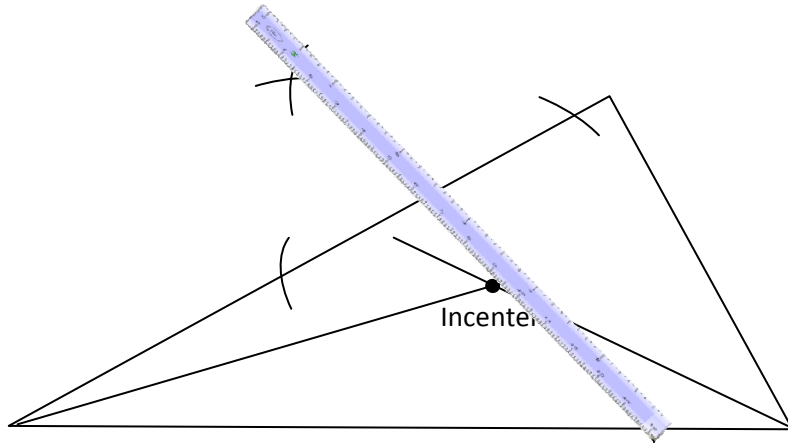
6) Find the point where the two new lines intersect, this is the incenter of the triangle.
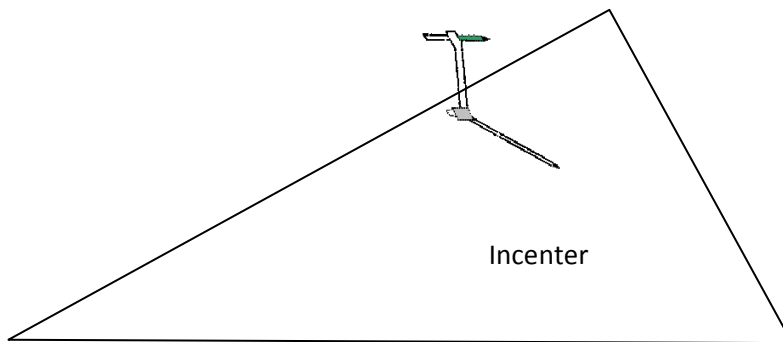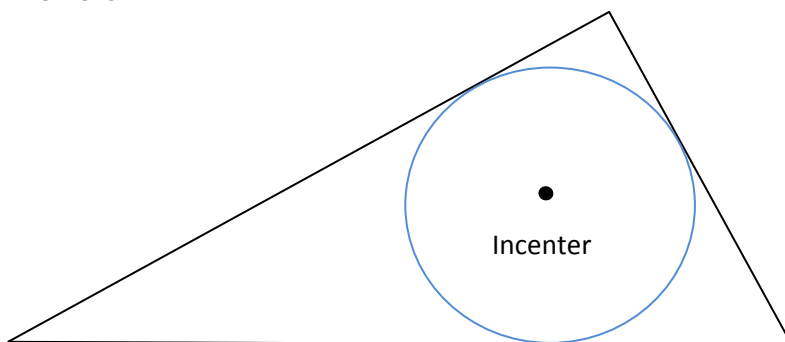
Incenter

7) Draw the perpendicular from the incenter to any side of the triangle. Mark a point where it meets the side.

Incenter

8) Place the compass on the incenter. Take the other end of compass and set it to the width of point M. This is the radius of the incircle, referred to as the inradius of the triangle.

Incenter

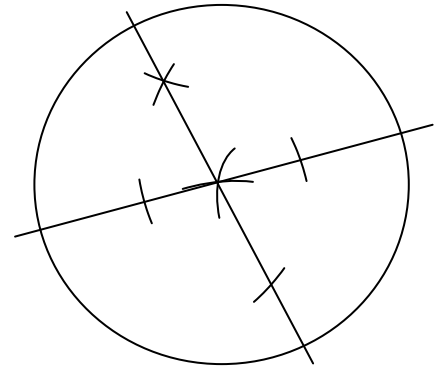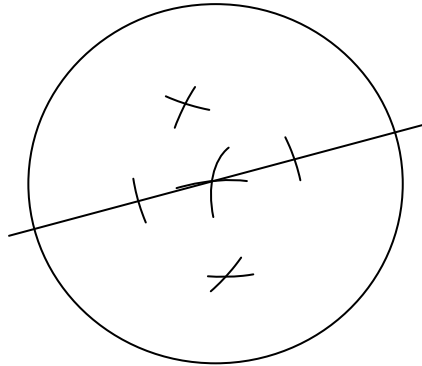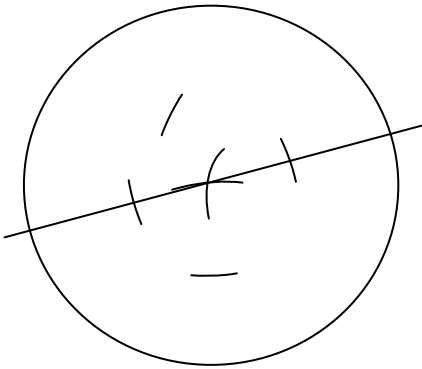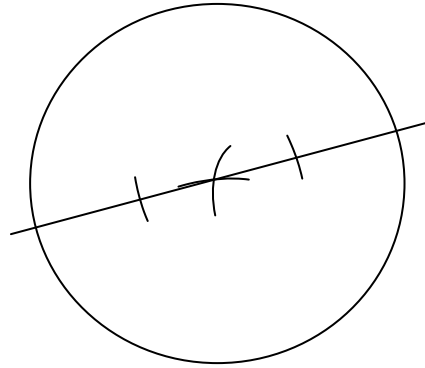9) draw a full circle. Use all those points as markers for the path of the circle.

Incenter
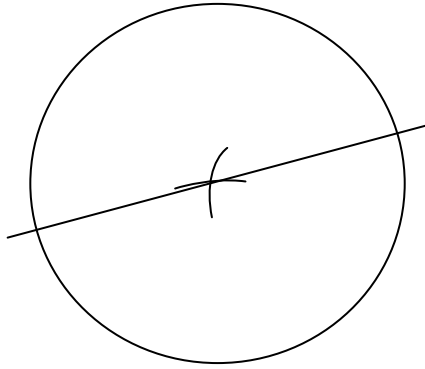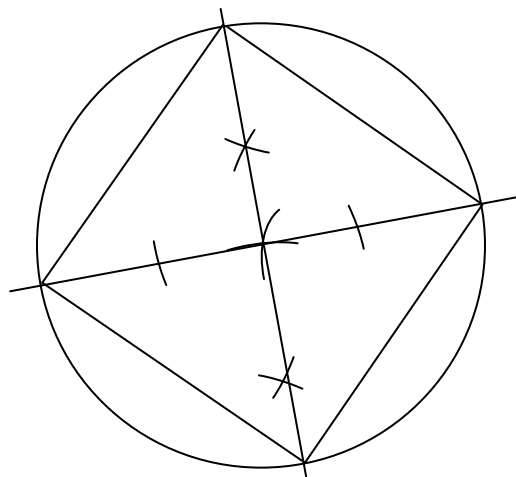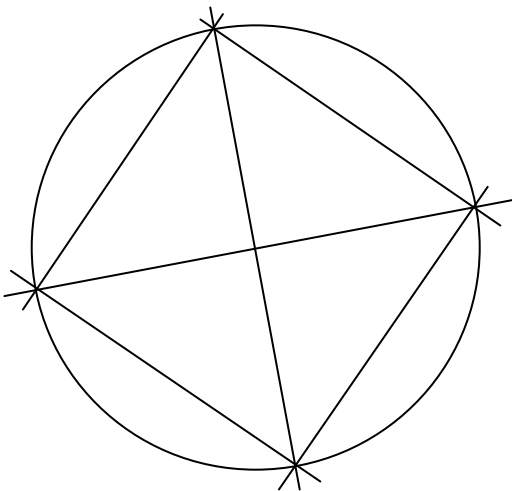
Explanation#2

Start by constructing a circle. Construct a diagonal through this circle. Extend the diagonal beyond the circumference of the circle. Construct a perpendicular line to this line through the center.
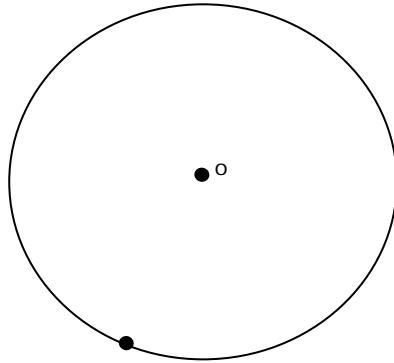
Now, connect the points where the lines intersect the circle. This how to inscribe a square in a circle.
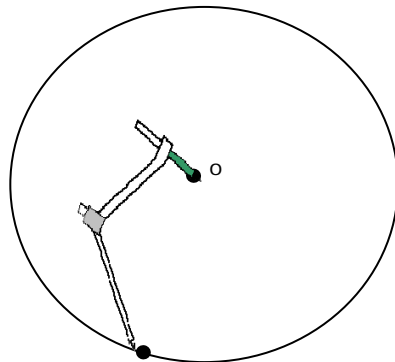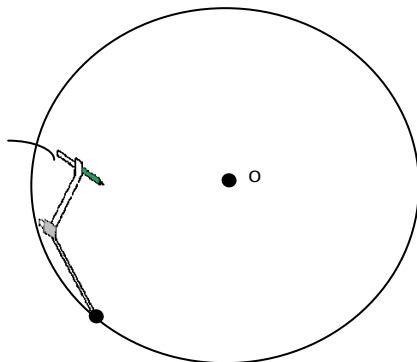
Explanation#3

1)Mark a point anywhere in the circle. This will be the first vertex of the hexagon.

2) Place the compass point on this point (O) and touch the other end to the circle. The compass is now set to the radius of the circle.
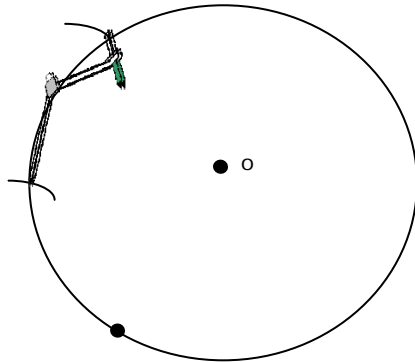
3. Make an arc from that point to the circle. This is the next vertex of the hexagon.
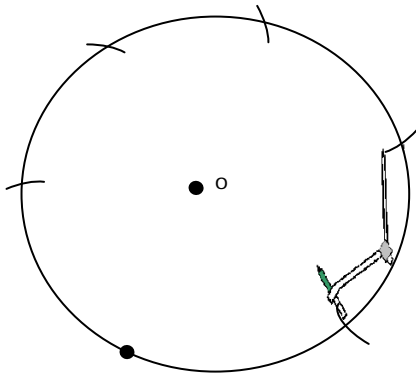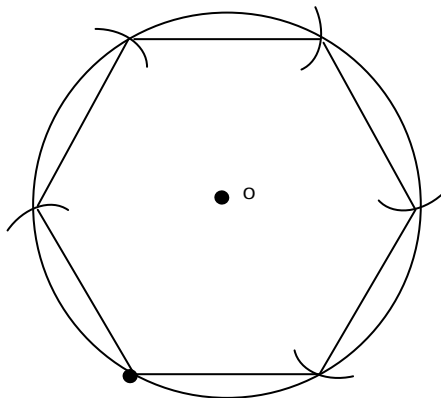
Name _____   Date _____

4. Move the compass point on the next vertex and draw another arc. Here is your thirrd vertex of the hexagon.

5. Continue in this way until you have all six vertices.

6. Draw a straight line between each successive pair of vertices, for a total of six lines.

This is our hexagon.