Creating an Angle Bisector

Step 1 Place the center of the protractor at the angle's vertex.

Step 2 Make sure one ray of the angle is aligned with the protractor.

Step 3 Determine the measure of the angle.

What is the angle's measure: _____

Step 4 An angle bisector splits the angle in half. Mathematically determine what half of the angle is.

What will be the measure of the bisected angle: _____

Step 5 Mark your calculation using the protractor.

Step 6 Use the straight edge of the protractor to sketch the angle bisector.

Using Angle Bisectors to form an Inscribed Circle

Step 1	Repeat all of the above at each vertex of the triangle. You will now have three new lines drawn.
Step 2	Where the three new lines intersect, mark a point as the incenter of the triangle.
Step 3	Draw a perpendicular line from the incenter to a side of the triangle. Use a protractor to ensure a 90 degree angle. Draw the point where it meets the side. (Recall that the inscribed circle just touches each side.)
Step 4	Place the compass on the incenter and set the width to your point. This is the radius of the incircle, sometimes called the inradius of the triangle.
Step 5	Draw a full circle.
Step 6	Done. This is the inscribed circle of the triangle

Creating a Perpendicular Bisector

Step 1 Use a ruler to determine the segment's length

What is the length: _____

Step 2 A perpendicular bisector splits the segment in half. Mathematically determine what half of the segment is.

What is half of the segment: _____

Step 3 Mark the midpoint of the segment from your calculation.

Place your protractor's center on the midpoint. Make sure that the protractor aligns with the segment.

Step 4 Since a perpendicular bisector meets the segment at a right angle, mark 90 degrees using the protractor.

Step 5 Use the straight edge of the protractor to sketch the perpendicular bisector.

Creating a Circumscribed Circle

Step 1 Repeat all of the above at the first side of the triangle.

Step 2 Repeat for the other two sides.

Step 3 The point where these three perpendicular bisectors intersect is the triangle's circumcenter, the center of the circle we desire. (This point may lie outside the triangle. This is normal.)

Step 4 Place the compass point on the intersection of the perpendiculars and set the compass width to one of the points vertices of the triangle. Draw a circle that will pass through all three.

Step 5 Done. The circle drawn is the triangle's circumcircle, the only circle that will pass through all three of its vertices.