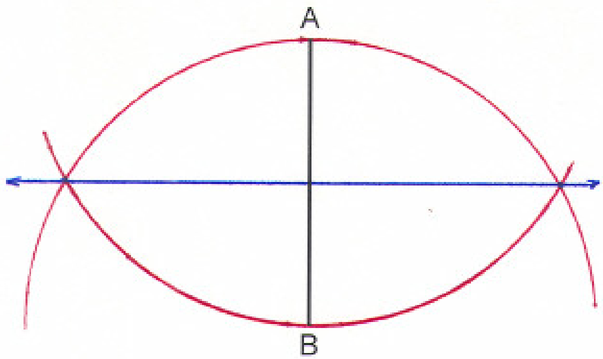
3. Use your straightedge to draw a line segment. Then use compass and straightedge to bisect the line segment.

Draw the segment, call it AB

Place compass at A, draw an arc through B.
Place compass at B, draw an arc through A.

The points where these arcs cross locates the required perpendicular bisector of AB.
(Draw the line.)



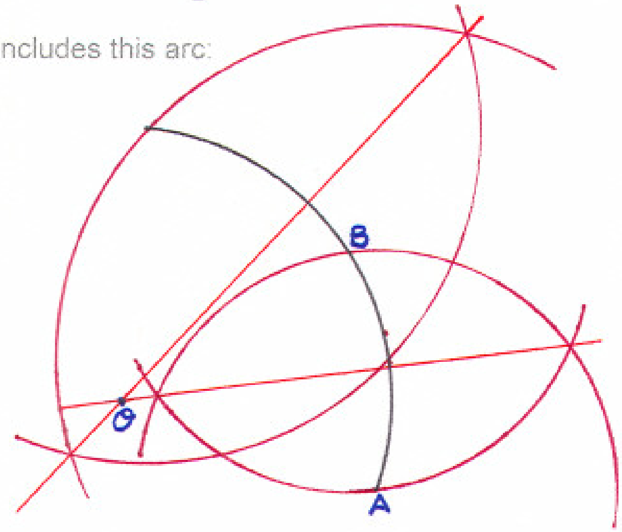
4. Use compass and straightedge to find the center of the circle that includes this arc:

We use the fact that every point on the circle is equidistant from the center, and that every point equidistant from the ends of a line segment lies on the perpendicular bisector of the segment.

We choose a pair of points (A&B) on the arc, construct the perpendicular bisector of AB.
Since the center must be equidistant from A and B, the center must lie on the bisector just constructed.

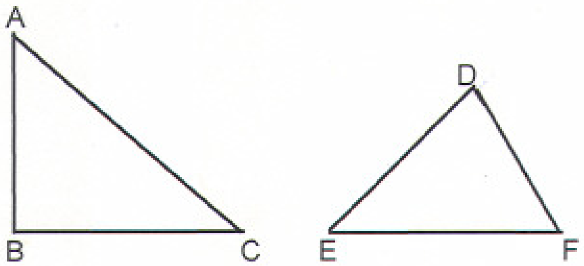
We repeat the process with a any pair of points, not equally distant from the midpoint of AB.

The center of the circle must lie on both ⊥ bisectors.... therefore must lie at their intersection.

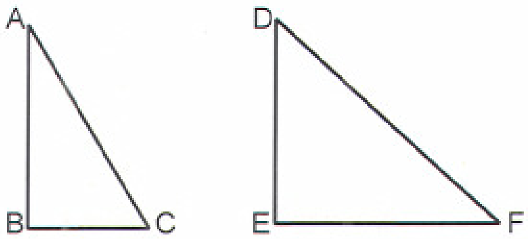


5. Carefully draw (use a straightedge) each of the following examples:
a) Two triangles, ΔABC and ΔDEF, where $\overline{AB} \cong \overline{DE}$ and $\overline{BC} \cong \overline{EF}$, but $\Delta ABC \ncong \Delta DEF$.
b) Two triangles, ΔABC and ΔDEF, where $\overline{AB} \cong \overline{DE}$ and $\angle A \cong \angle D$, but $\Delta ABC \ncong \Delta DEF$.

a) We vary the angle between the congruent sides.



b) We vary the length of the next side ($\overline{BC} \ncong \overline{EF}$).



6. Measure each angle to the nearest degree with a protractor.

The angles measure (very close to) 45°, 135°, and 30°, respectively, left to right.

7. Use a ruler to draw a line segment,
a) 1 ¾ inches long.
b) 6 centimeters long.