

Chord Property #1 :

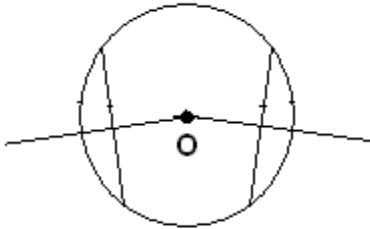
- Step 1: Construct a circle. Label its center as O .
- Step 2: Construct two *congruent* chords in the circle.
Use your compass on the second chord to guarantee it is congruent to the first.
Label the chords as \overline{AB} and \overline{CD} .
- Step 3: Construct the four radii \overline{OA} , \overline{OB} , \overline{OC} , and \overline{OD} .
- Step 4: Find $m \angle BOA$ and $m \angle COD$.
- Step 5: Repeat (time permitting)

If two chords in a circle are congruent, then they determine two central angles that are _____.

If two chords in a circle are congruent, then they determine arcs that have equal _____.

Chord Property #2:

- Step 1: Construct a circle. Label its center as O .
- Step 2: Construct two *congruent* chords in the circle. (**NOT** parallel and **NOT** diameters)
Use your compass on the second chord to guarantee it is congruent to the first.
- Step 3: Use your ruler to find perpendicular lines to each chord where each line goes through the center of the circle as well. (You know how to do this...)
- Step 4: Measure the distance from the center to the chords.
- Step 5: Repeat (time permitting)



Two congruent chords in a circle are _____ from the center of the circle.

Chord Property #3:

Step 1: Construct a large circle. Label its center as O .

Step 2: Construct two non-parallel chords that are not diameters.

Note: They do not have to be congruent chords.

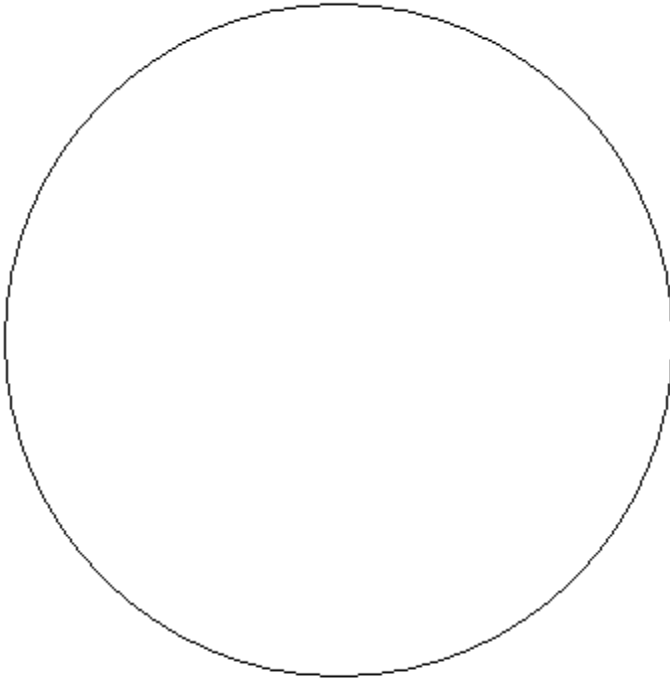
Step 3: Construct the perpendicular bisector of each chord and extend them until they intersect.

What happens with the point of intersection? Try this a few times to be sure it seems legit.

The perpendicular bisector of a chord _____.

Finding the center of a circle...

Use the results from **Chord Property #3** to find the center of the following circle:



Find the length of the arc below in centimeters.

(Hint: Find the center of the circle by drawing any two chords.

Use this to find the measure of the central angle and the length of the radius, then use your knowledge of arc length.)

