

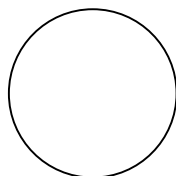
Circles, Segments, & Regions

September 29, 2008

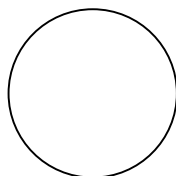
Name _____

In this warm-up you will be thinking, drawing some diagrams, counting, and then trying to find a pattern for a sequence of numbers.

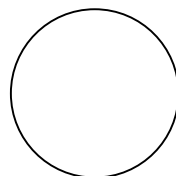
- Place two points anywhere on the first circle. Then connect the points with a segment.
- You will hopefully notice that you have split the circle into two regions – double check to be sure
- Now continue by placing 3 points on the second circle and connecting all of the points with segments (*Draw all the possible segments connecting your three points*). Count the number of regions you have created and record it in the table below.
- Continue this system with 4 points on the next circle and then 5 points on the final circle remembering to record the number of regions in the table. When drawing segments make sure you draw all the possible segments connecting the points. (*HINT: You should have 6 segments total on the 4 point circle*)



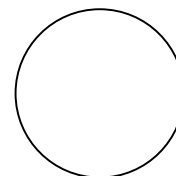
2 POINTS



3 POINTS



4 POINTS



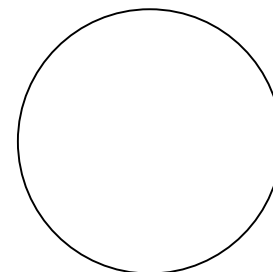
5 POINTS

Last class we looked at a similar problem with intersecting lines and decided to try to find a numerical pattern rather than continuing to draw pictures and count. See if you can find a pattern that would tell you how many regions you expect to get with 6 points on a circle.

Points on the Circle	Maximum number of regions
2	
3	
4	
5	
6	

Based on your pattern, if you went in reverse, how many regions would you get with only 1 point on the circle? Does the number that the pattern suggests make geometric sense?

Now take a moment and carefully draw a version of the circle with 6 points on it. Draw the segments and then count the regions. Does your answer agree with what the pattern predicted?



6 POINTS