Problem 3 (due Monday, March 16)

Recall that a $chord$ of a circle is a straight line segment whose endpoints both lie on the circle.

Several chords are drawn in a circle of radius 1 so that any diameter of the circle intersects at most k of the chords. Prove that the sum of the lengths of all the chords drawn is less than $k\pi$.

Ashton Keith, a freshman majoring in math, is the only person who submitted a complete solution. His solution is very nice and different from our original solution. A solution along similar lines, but lacking sufficient details, was also submitted by Yuqiao Huang. Both our solution and the solution by Ashton Keith are discussed in the following link Solution