11. Circle Fans and Cusps on a Clockface

The image below shows circle fans at hour marks and cusps at half-hour marks. This image has 12 degrees of rotational symmetry.

A) Use your knowledge of how circle fans and cusps are created to determine the **n** and **k** that produced this image.

B) Without counting individual lines, you should be able to explain how many lines were used to create this image.

HINTS: Notice that the lines creating each cusp end in a different circle fan. If you count the number of lines creating a single cusp then you need not worry about counting them all due to the rotational symmetry in the image AND you do not need to worry about counting fan lines either.

C) Do any of the lines **START** at a circle fan base vertex? Explain by noting what happens at the 1 o'clock vertex.