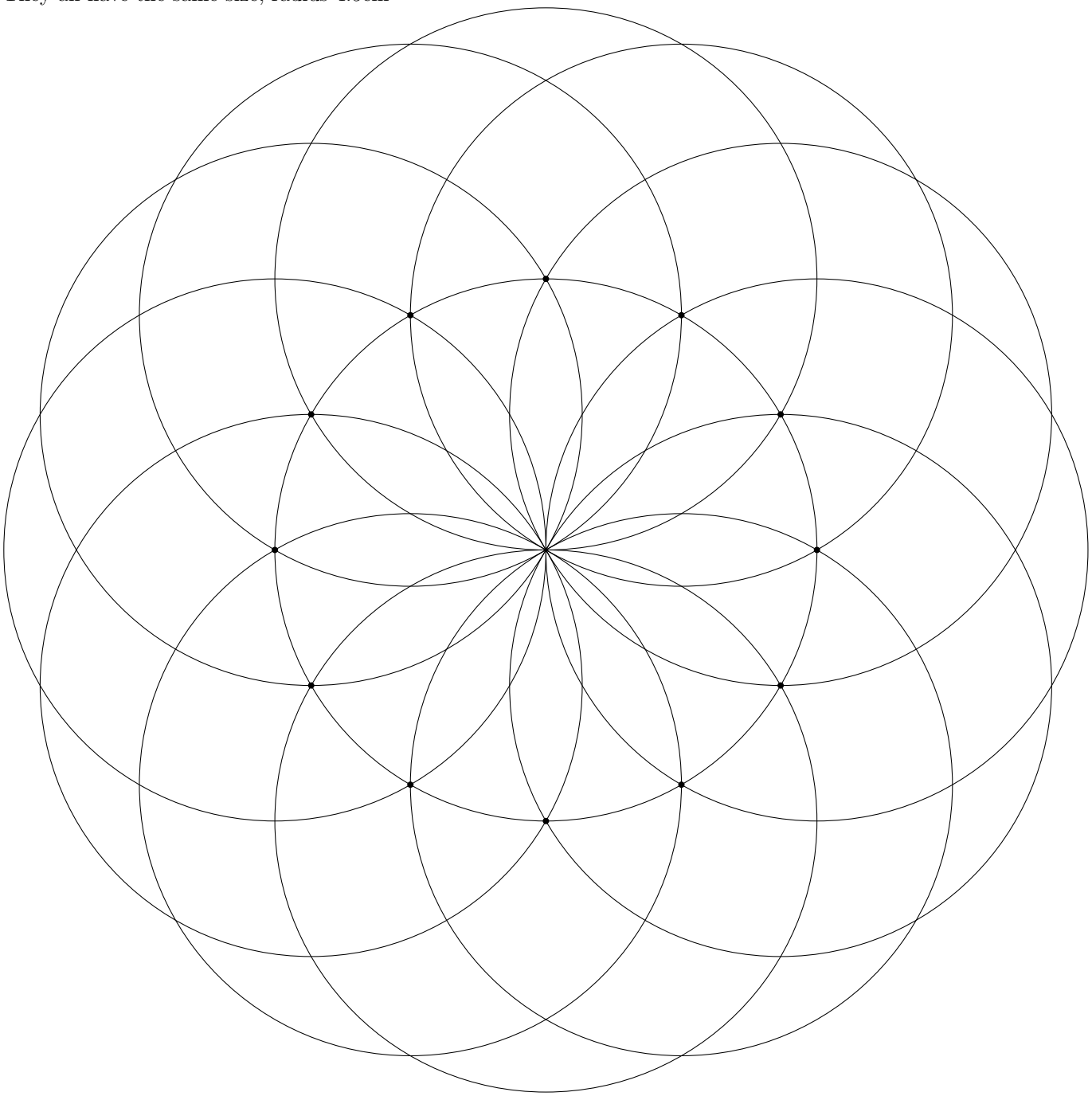
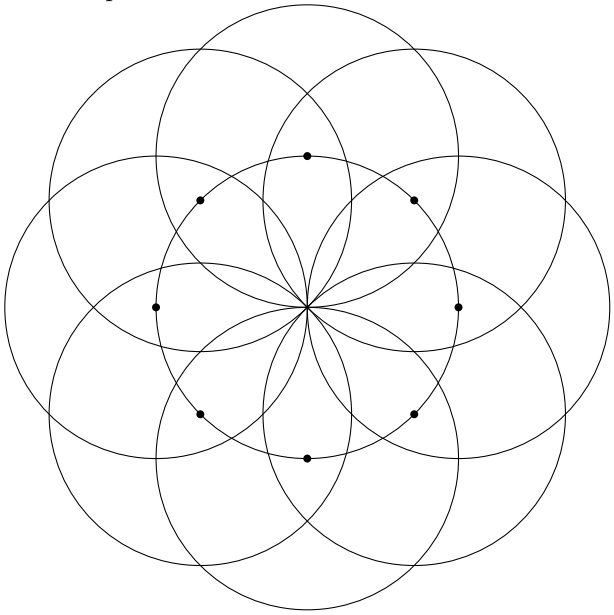
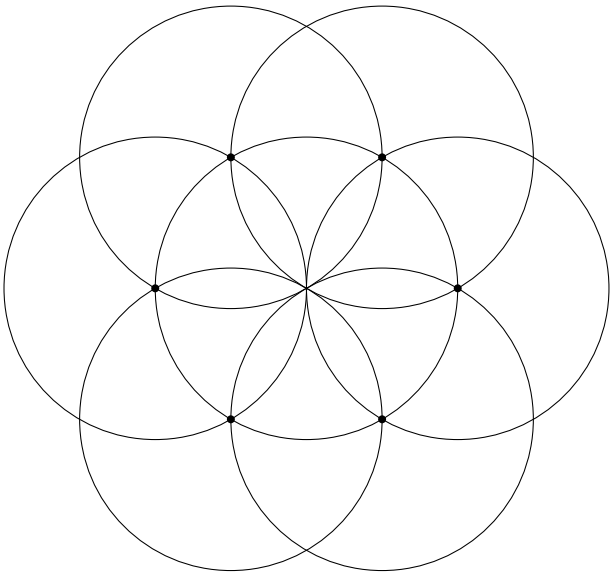
Circles on a circle

Find all the circles in this picture and colour them in!
They all have the same size, radius 4.5cm



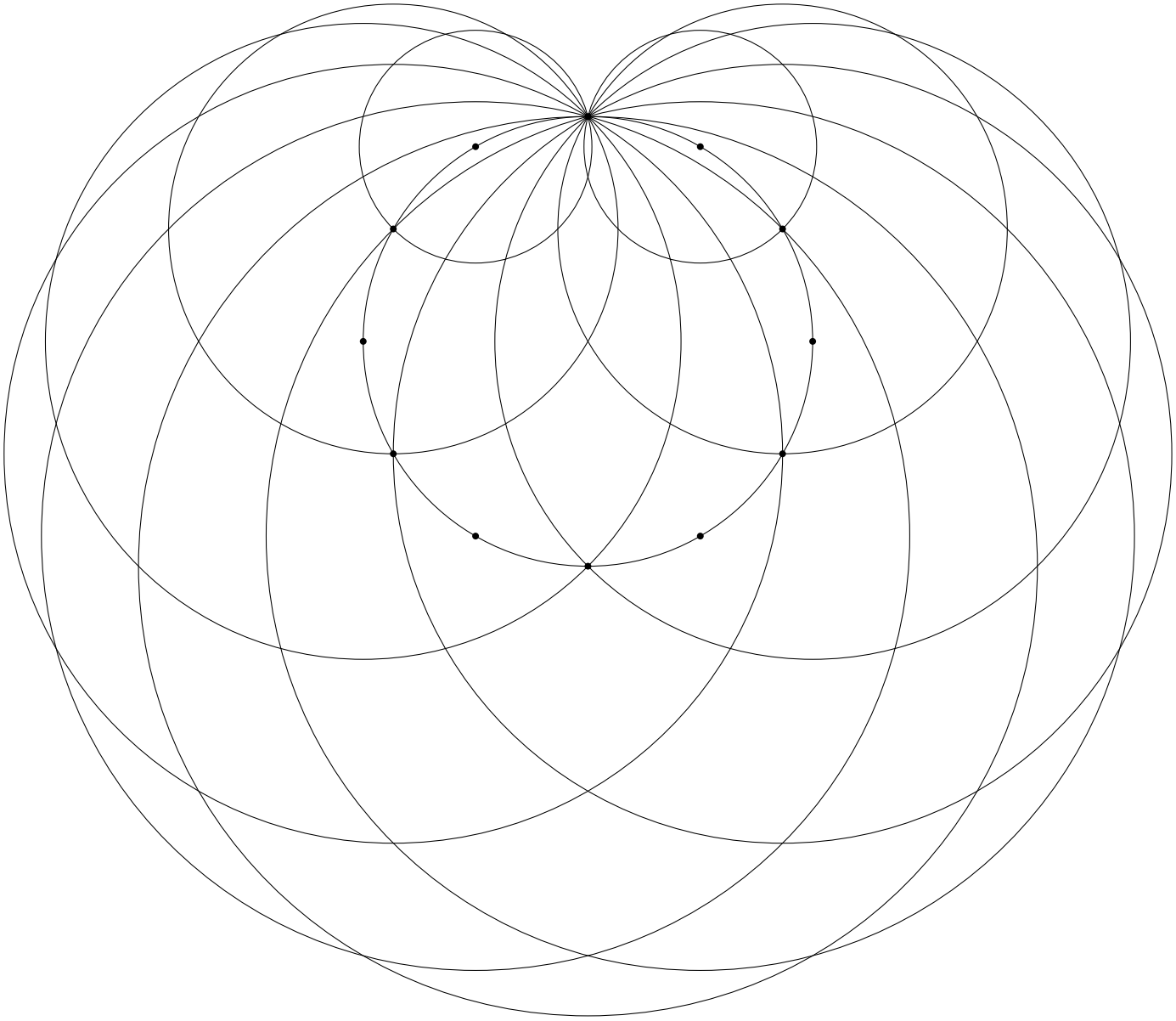
In these pictures the radius is 2cm

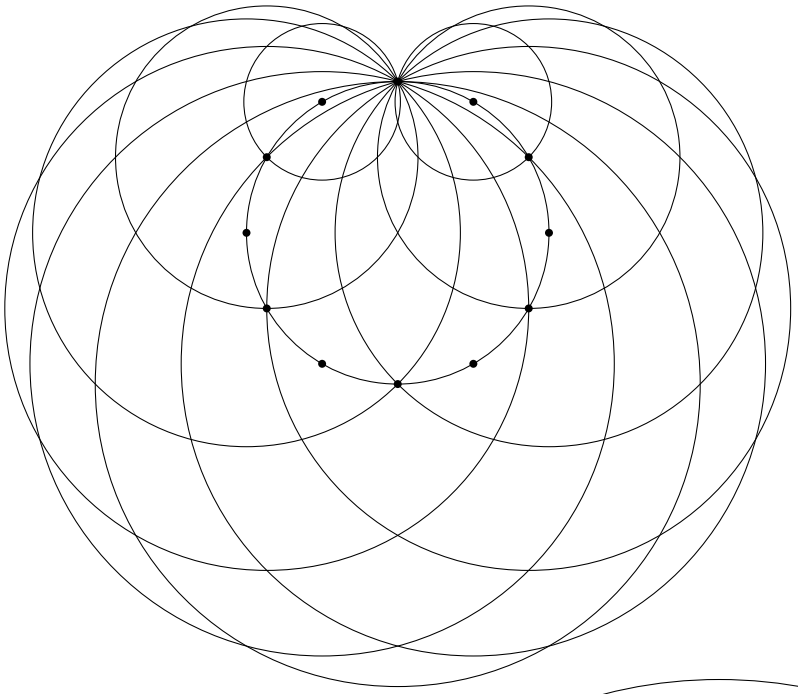


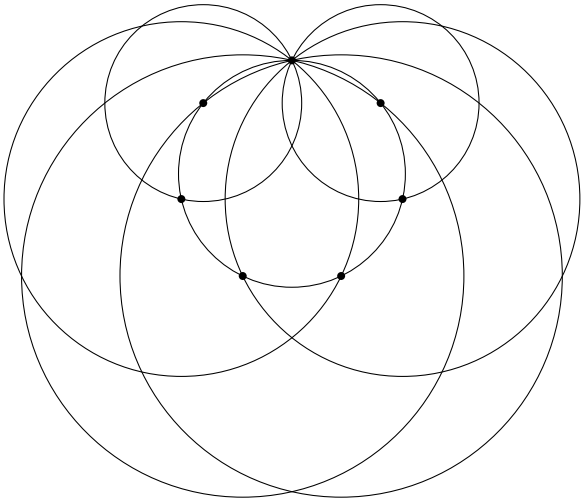


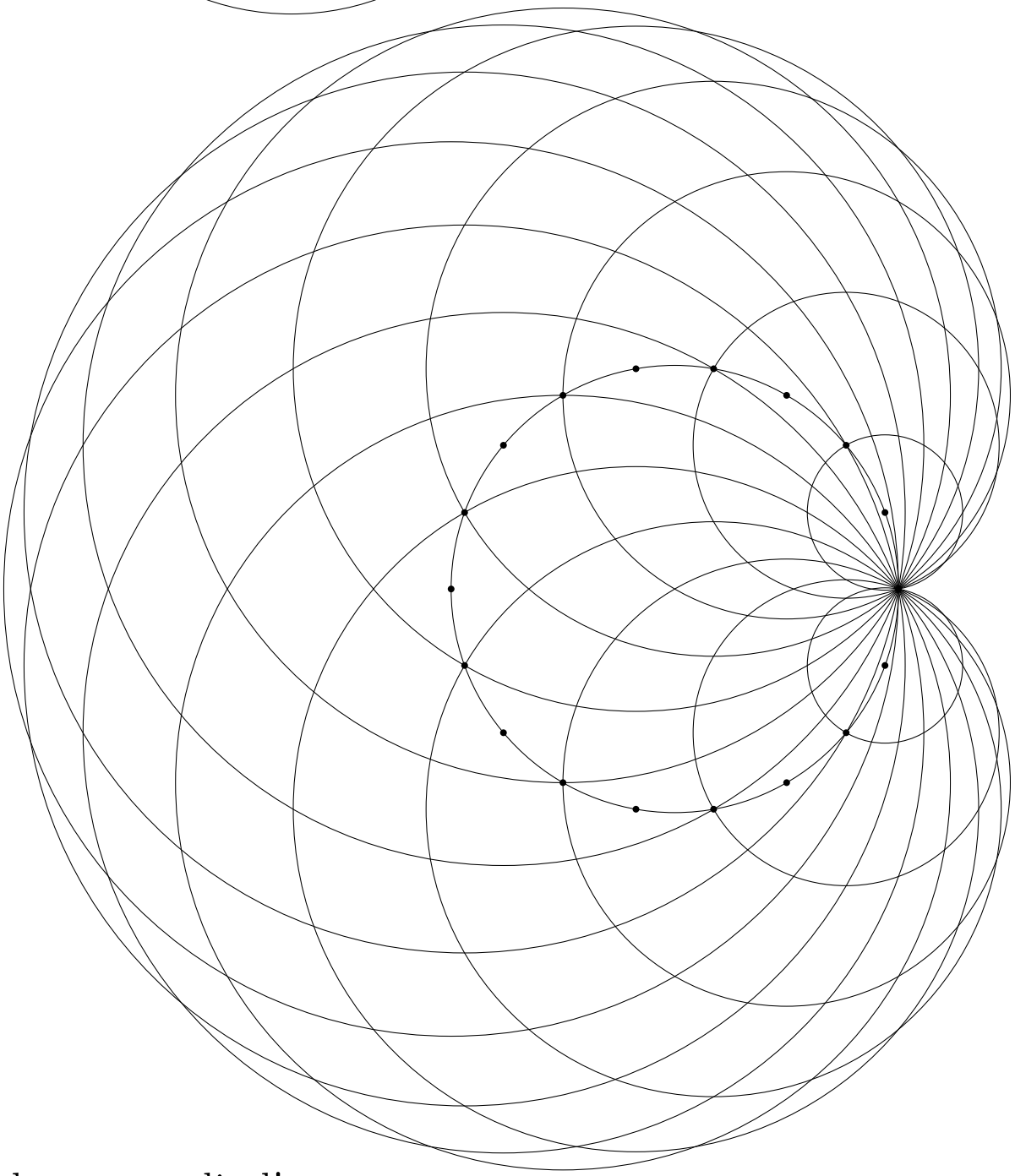
Cardiod

The little dots are at the centres of the circles. The circles are drawn so they all have a point in common
Can you see which dot is at the centre of which circle?
Colour the picture in!
the "apple" shape round the edge is called a "cardioid"



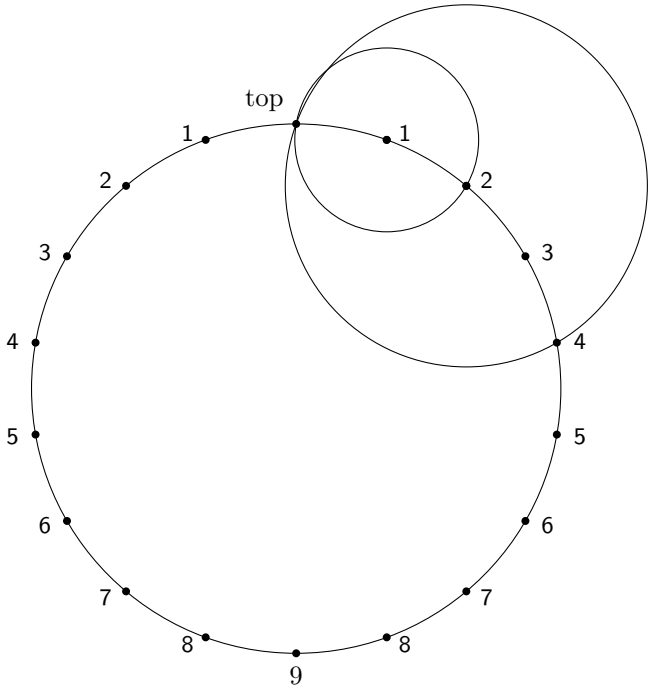




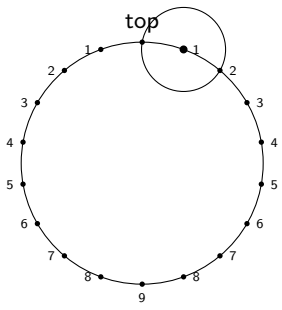


Colour a cardiod!

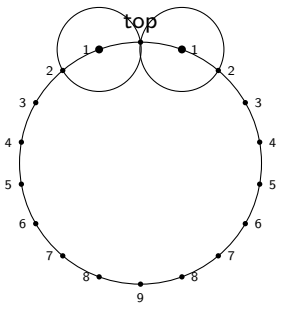
Draw a cardiod! Complete this picture, using the instructions below. Make your own on blank paper.



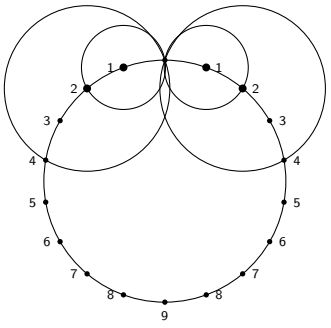
Instructions

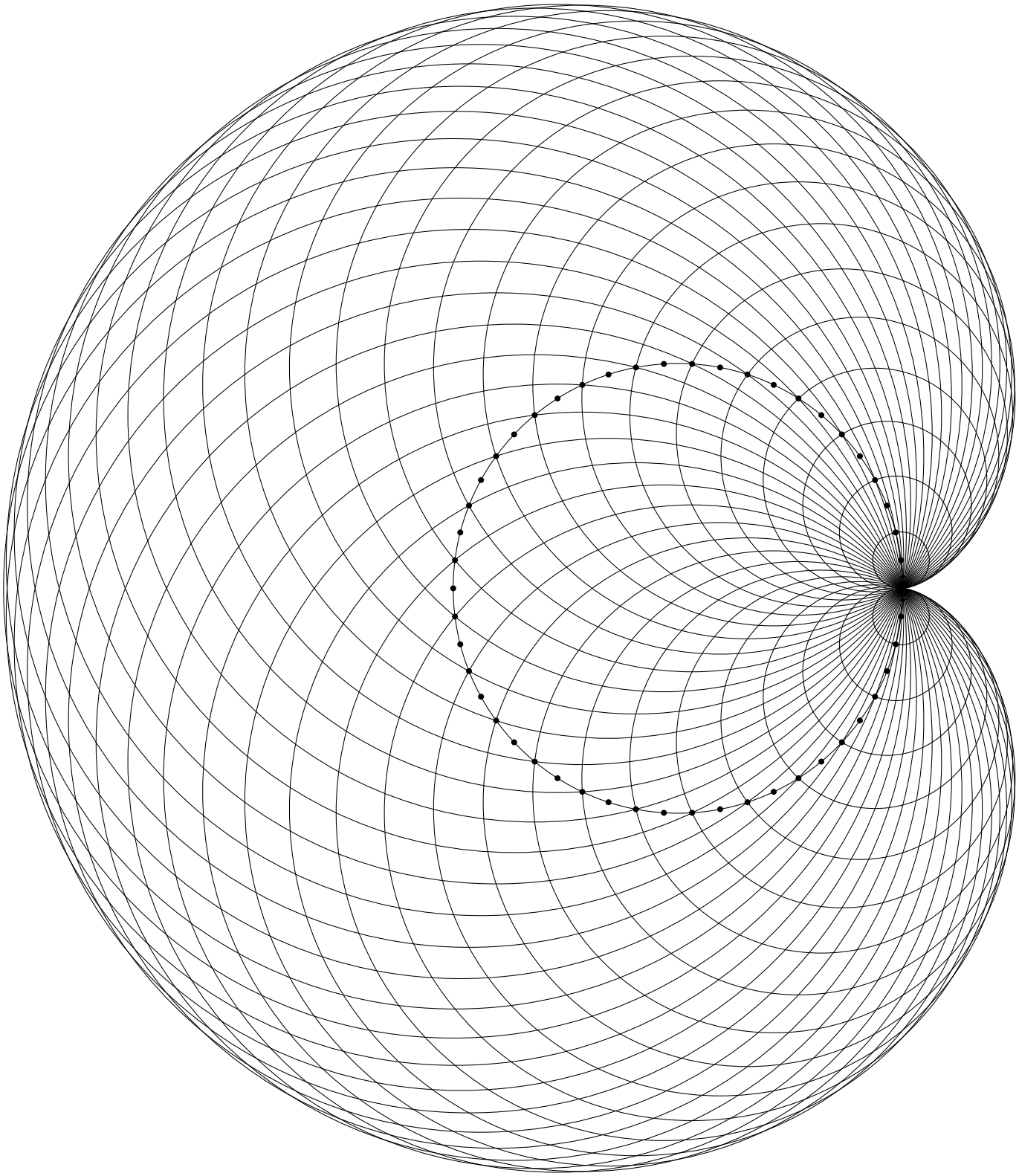
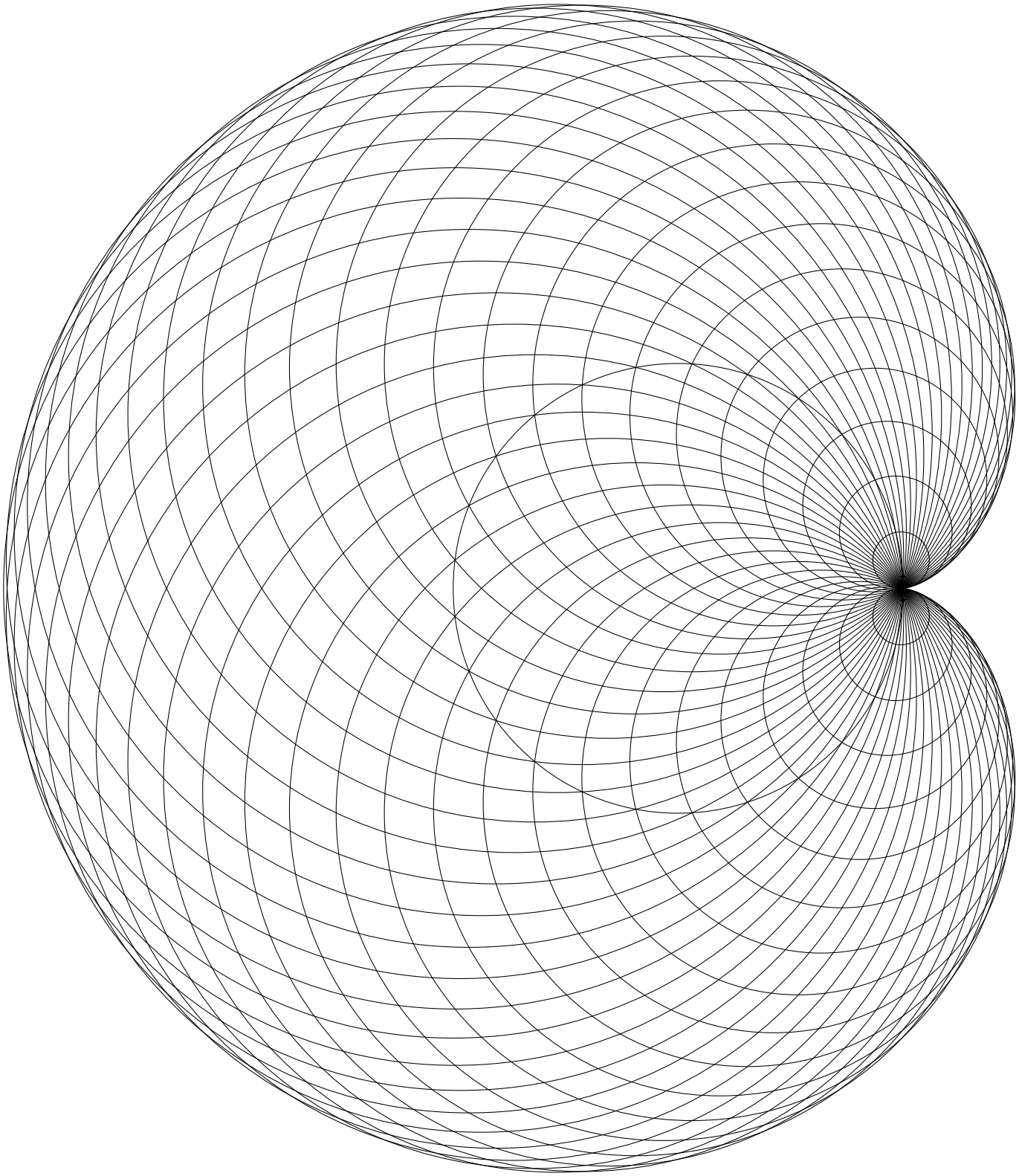
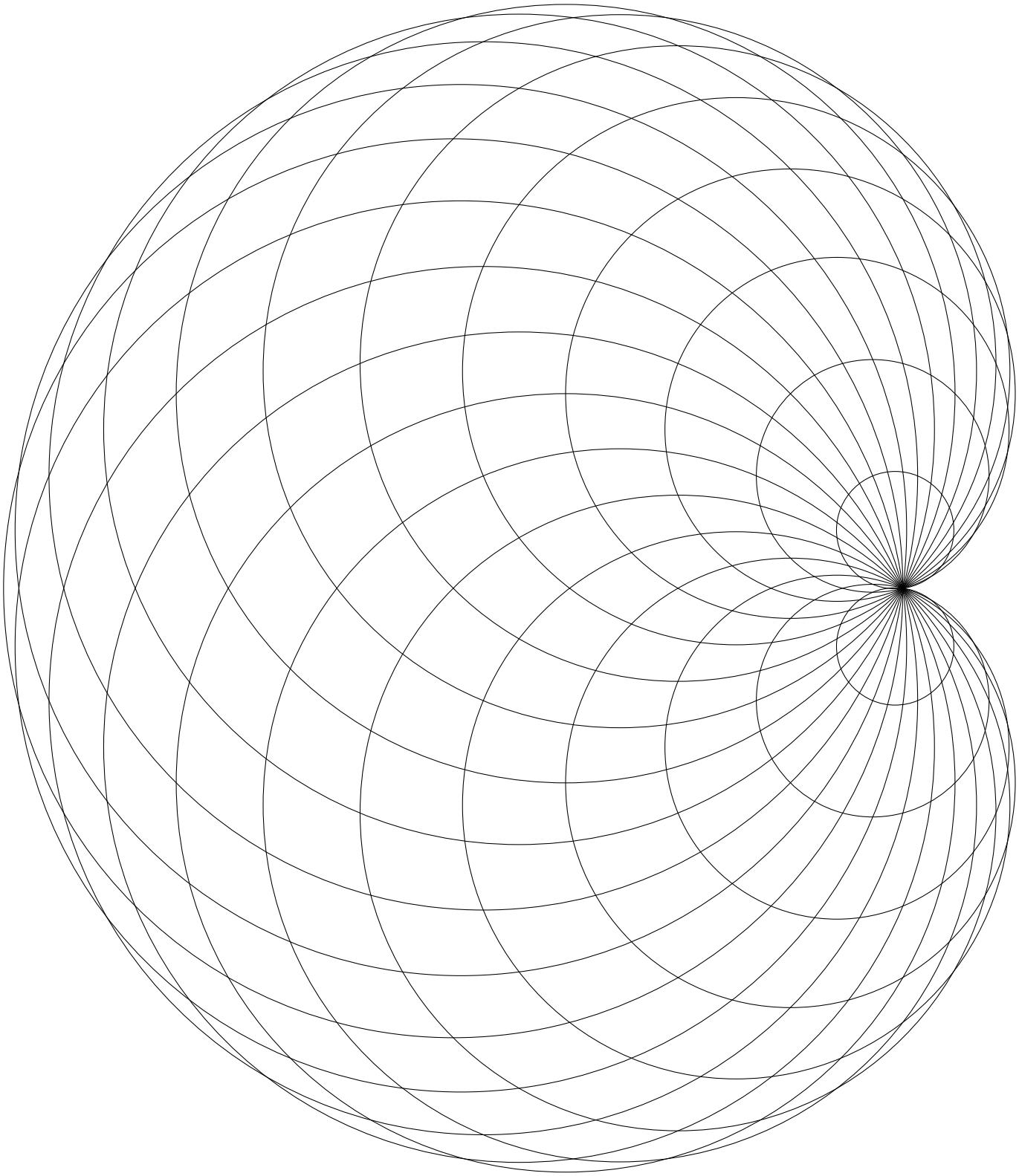


1. Put the point of a compass at point 1. Put the pencil tip at the "top" point, and draw a circle



2. Put the point of a compass at the other point 1 and repeat



3. Now add circles centred at points 2, also passing through the top. Keep on going, drawing circles centred at each dot. Two are already drawn for you

[this is copied from the book "this is not a maths book" by Anna Weltman, page 15]