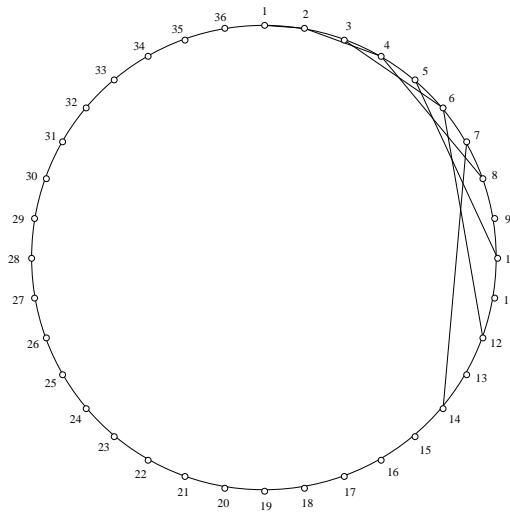


THE CARDOID & THE NEPHROID

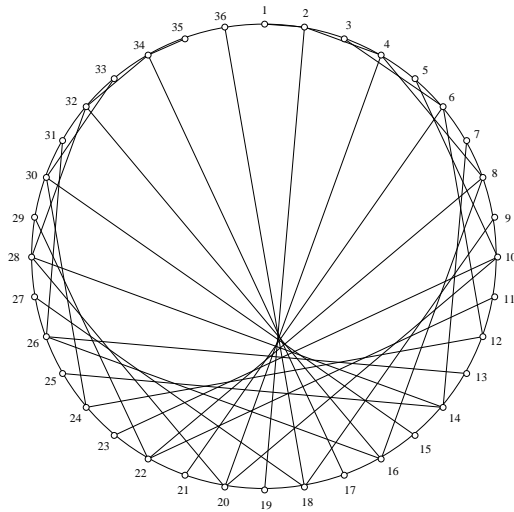
- To discover the shape of a 'Cardoid', follow the instructions below.
 - Construct a large circle by drawing two semi-circles using Geo-Pro's protractor. Use the 10° intervals on Geo-Pro's protractor to mark 36 numbered points around the circle.
 - Join point 1 to point 2, 2 to 4, 3 to 6, 4 to 8, 5 to 10 and so on (i.e. connect each point to its 'double'). If you obtain a number greater than 36 after doubling, subtract 36. e.g. For point 20, doubling gives 40, so subtract 36 to get 4. Hence join point 20 to point 4.



- A 'Nephroid' is obtained in a similar fashion to that above, but this time, each point is joined to its triple (i.e. point 1 is joined to point 3, 2 to 6, 3 to 9 etc). If a value greater than 36 is obtained after tripling, 36 is subtracted as many times as necessary to get a value on the circle.
Construct a Nephroid.

Answers
THE CARDOID & THE NEPHROID

1. Cardoid means 'heart shaped'. (Recall 'Cardiac'.)



2. Nephroid means 'kidney shaped'. Numbering dots every 5° may produce a clearer curve.

