Sketching Curves of Polar Equations

How would you sketch each of the following? (Listed on specification)

 Summary

Sketching Using a Table of Values

Use the table to sketch the graph of

|  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- |
|  |  |  |  |  |  |
|  |  |  |  |  |  |

(NB: Negative values of r are discounted in Edexcel CP2)

Examples:

Investigate these:

Observations:

Egg or Dimple?

Polar graphs of the form with p,q > 0 are known as limaçons.

The ratio tells us about the general shape of the limaçon.

For CP2 we are required to sketch limaçons of the and . Since we require r > 0 we need only situations where p ≥ q.

Case 1: p = q

Case 2: p > 2q

Case 3: q < p < 2q

Case 4: (not required but interesting!) p < q

Examples:

1. Sketch
2. Sketch
3. (a) Show on an Argand diagram the locus of points given by the values of satisfying

(b) Show that this locus of points can be represented by the polar curve

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