Further Maths at Huntington School

FAQ's

1) Is the Further Maths A-Level harder than Maths?

YES! – but we love a challenge!

2) Should I do further maths because (insert name here) thinks it will look good for university?

Only do it if you love maths. If you don't love maths, you are unlikely to do well. A bad grade in anything doesn't look good.

3) Should I do further maths because I enjoy it and enjoy solving problems?

YES! – For every lesson there will be at least 1 hour worth of extra study- if you enjoy it then it won't be a problem!

FAQ’s

1) What GCSE Grade do I need?

Ideally an 8 or 9. However individuals will be considered with a 7 if their current teacher feels they will work hard and achieve.

2) Do I need to do the Further Maths GCSE?

NO! – It will be very beneficial to those who have it but it is not essential.

Course Outline

We are using the Edexcel specification:

Paper 1: Core Pure Mathematics 1 (*Paper code: 9FM0/01)

Paper 2: Core Pure Mathematics 2 (*Paper code: 9FM0/02)

Each paper is:

1 hour and 30 minutes written examination

25% of the qualification

75 marks

Content overview

Proof, Complex numbers, Matrices, Further algebra and functions, Further calculus, Further vectors, Polar coordinates, Hyperbolic functions, Differential equations

Assessment overview

- Paper 1 and Paper 2 may contain questions on any topics from the Pure Mathematics content.
- Students must answer all questions.
- Calculators can be used in the assessment.

Course Outline

Paper 3: Further Mathematics Option 1 (*Paper codes: 9FM0/3A-3D)
Written examination: 1 hour and 30 minutes ***25% of the qualification*** ***75 marks***
Content overview **Students take **one** of the following four options: A: Further Pure Mathematics 1 B: Further Statistics 1 C: Further Mechanics 1 D: Decision Mathematics 1
Assessment overview • Students must answer all questions. • Calculators can be used in the assessment.

Course Outline

Decision Time!

decisions,
decisions,
decisions!

Course Outline

Paper 4: Further Mathematics Option 2 (*Paper codes: 9FM0/4A-4G)
Written examination: 1 hour and 30 minutes ***25% of the qualification*** ***75 marks***
Content overview **Students take **one** of the following seven options: A: Further Pure Mathematics 2 B: Further Statistics 1 C: Further Mechanics 1 D: Decision Mathematics 1 E: Further Statistics 2 F: Further Mechanics 2 G: Decision Mathematics 2
Assessment overview • Students must answer all questions. • Calculators can be used in the assessment.

Course Outline

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Teaching time

Year 12 = 8 hours a fortnight

(4 hours with each teacher – MRB & JRB)

Year 13 = 10 hours a fortnight

(6 hours with one teacher, 4 with the other)

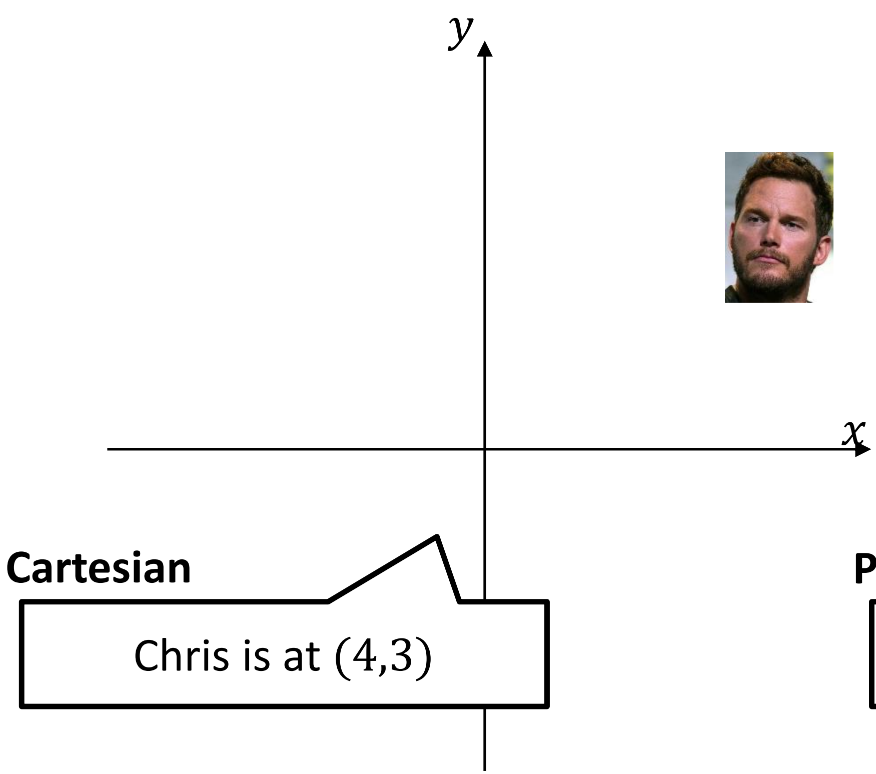
Outside of lessons there is an expectation that each student will work a minimum of an extra 5 hours a week

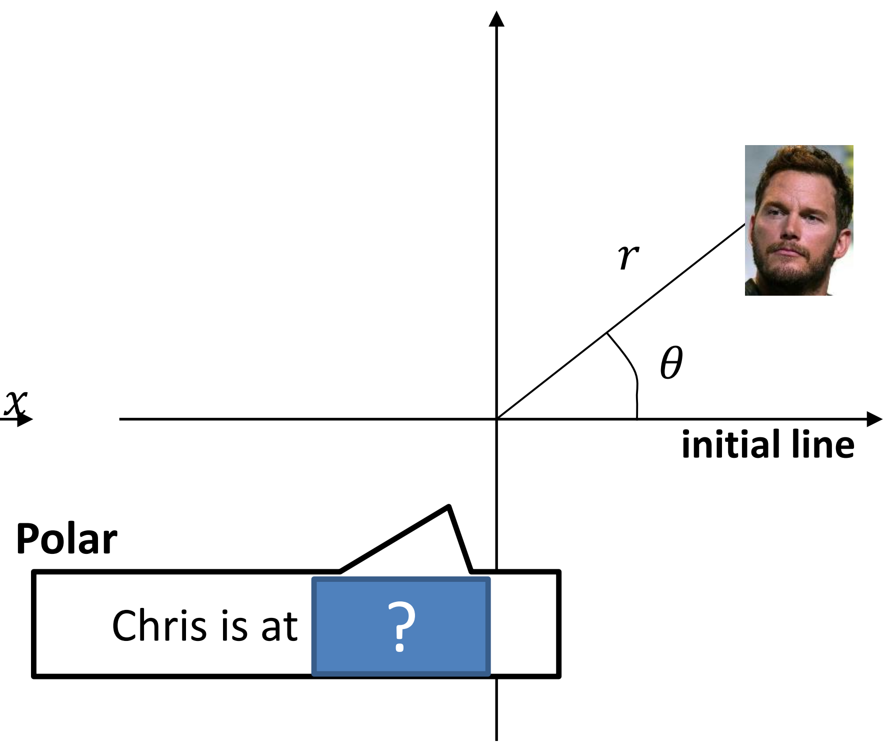
Polar Coordinates

Paper 1: Core Pure Mathematics 1 (*Paper code: 9FM0/01) **Paper 2: Core Pure Mathematics 2 (*Paper code: 9FM0/02)**
Each paper is: ***1 hour and 30 minutes written examination*** ***25% of the qualification*** ***75 marks***
Content overview Proof, Complex numbers, Matrices, Further algebra and functions, Further calculus, Further vectors, Polar coordinates, Hyperbolic functions, Differential equations
Assessment overview • Paper 1 and Paper 2 may contain questions on any topics from the Pure Mathematics content. • Students must answer all questions. • Calculators can be used in the assessment.

What the devil are polar coordinates?

So you've worked with a Cartesian coordinate system, but sometimes it is makes more sense to use a **polar** coordinate system instead, using the distance from the origin and anticlockwise angle from the positive x-axis.

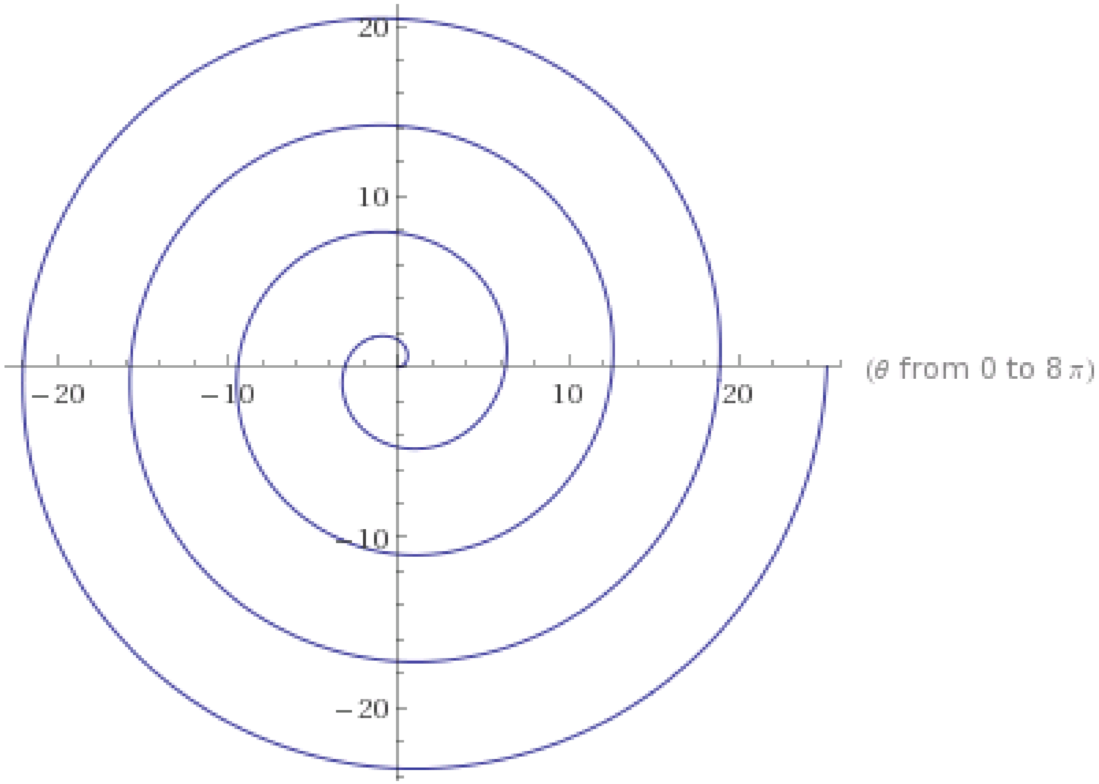




Cartesian Form: (x, y)

Polar Form: (r, θ)

Why polar form is sometimes better



This rather lovely spiral pattern has the very simple polar equation $\boldsymbol{r = \theta}$.

In Cartesian form:

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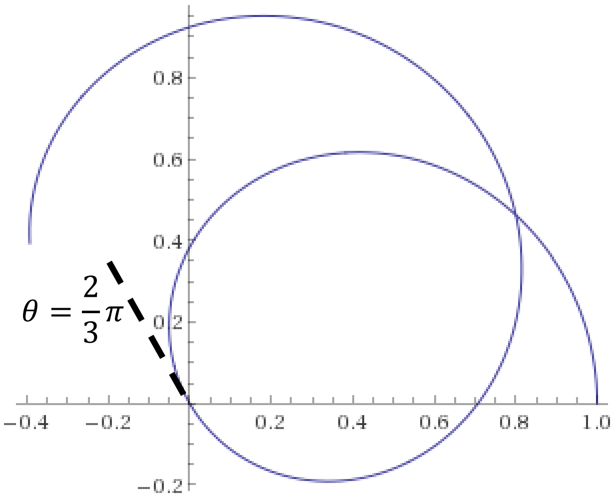
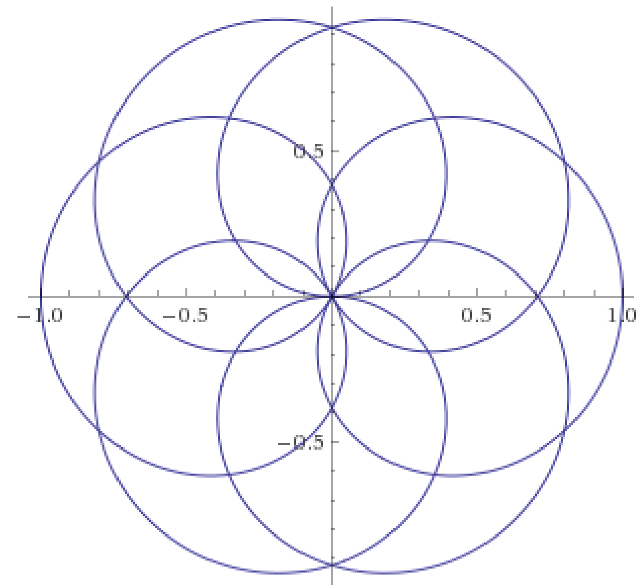
which is horrid.

Sketching using tables of values

Just for fun… (not in the syllabus)

Below is a polar rose: $\boldsymbol{r = \cos\left(\frac{3}{4}\theta\right)}$





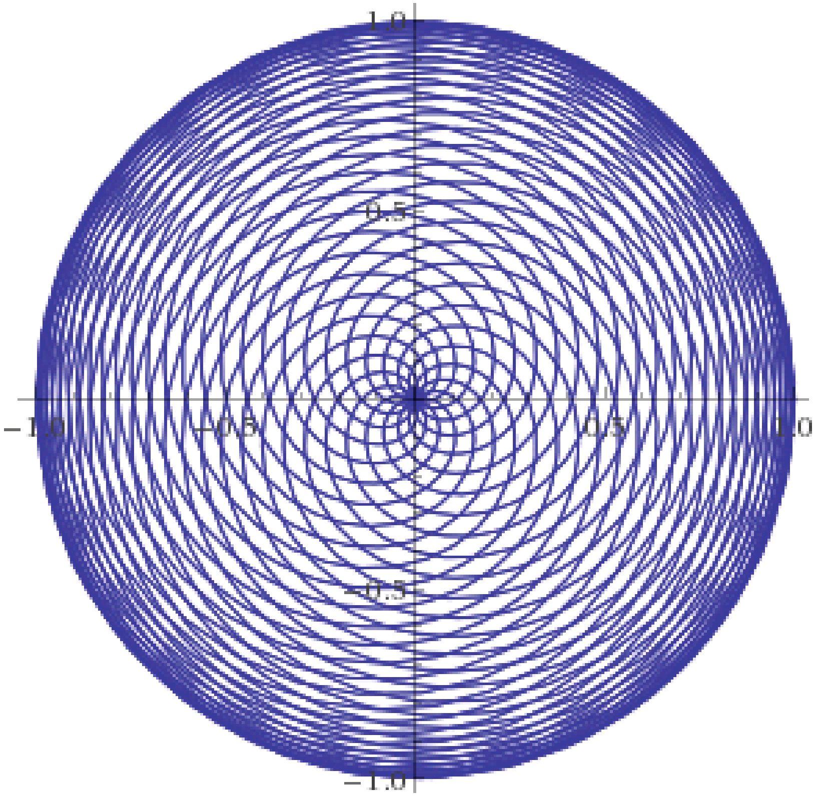
Just for fun… (not in the syllabus)

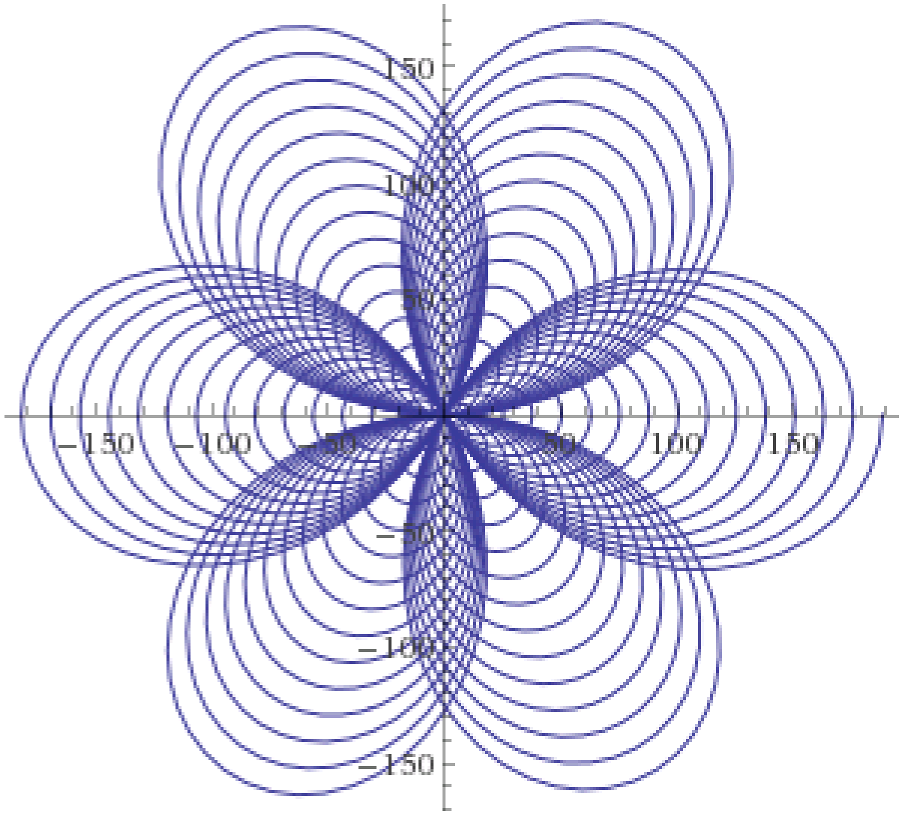
And it can get rather pretty…

$$r = \cos\left(\frac{13}{99}\theta\right)$$

$$r = \theta\cos\left(\frac{3}{2}\theta\right)$$

(This is a spiral combined with a polar rose)





Just for fun... (not in the syllabus)

$$r = \cos(\mathbf{e}\theta)$$