

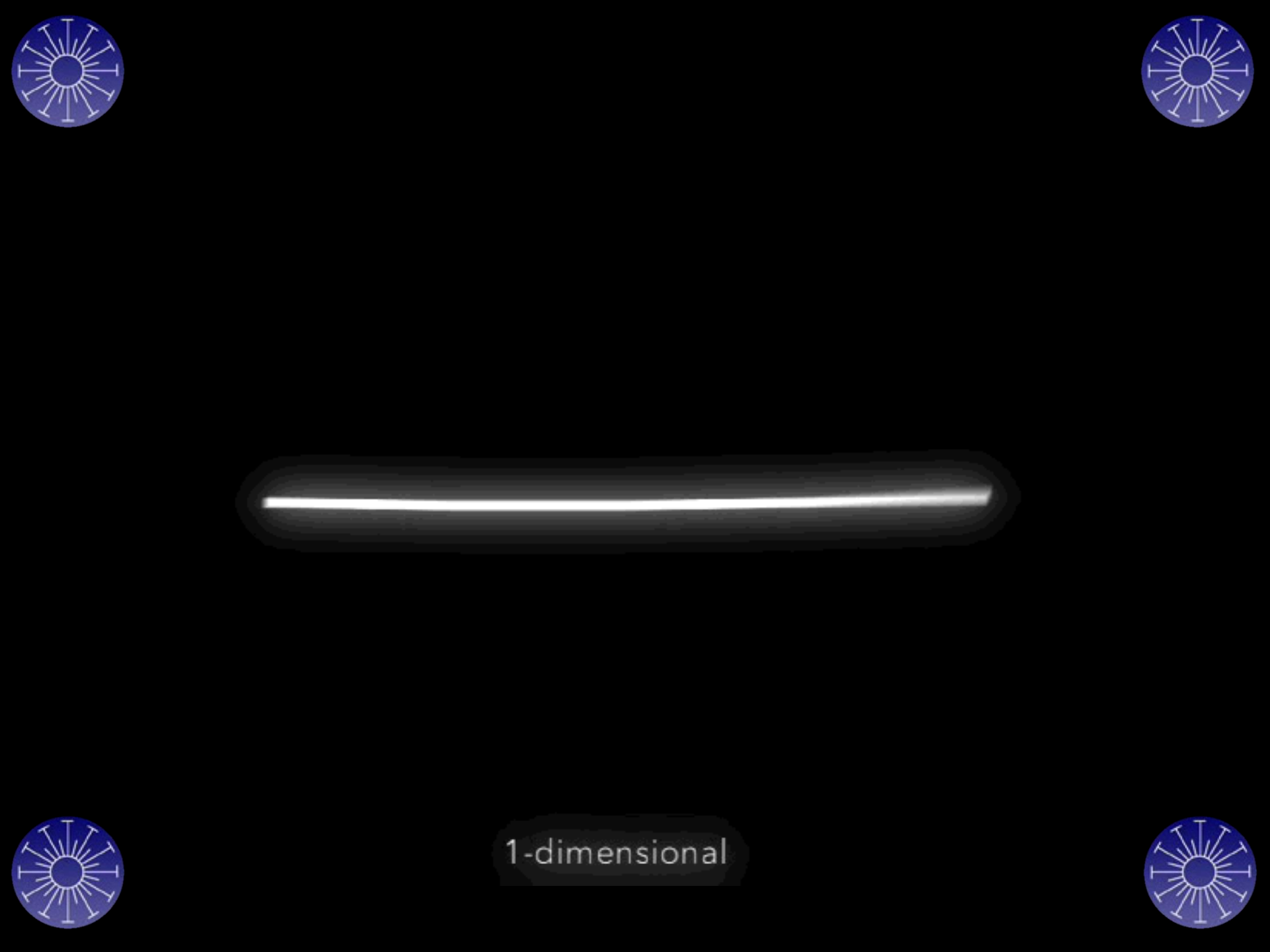
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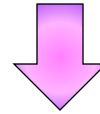
Sixth Form Induction Day

Maths & Further Maths Taster Session





# Year 12



## Mock Examinations

Year 12 Exams actually count if you are only doing AS Level and are NOT continuing to A Level

# Year 13

## A Level Mathematics



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# What does it include?

Pure Maths

Proof, Algebra,  
Graphs,  
Sequences,  
Trig, Logs,  
Calculus,  
Vectors

Statistics

Mechanics



# What does it include?

Pure Maths

Statistics

Mechanics

Data processing  
and Sampling,  
Probability,  
Binomial  
Distribution



# What does it include?

Pure Maths

Statistics

Mechanics

Kinematics,  
Motion under  
Gravity, Forces,  
Newton's Laws,  
Simple  
Moments



# Pure Maths

- Problem solving
- Surds and Indices
- Quadratic functions
- Equations and Inequalities
- Coordinate Geometry
- Trigonometry
- Polynomials
- Graphs and Transformations



- The Binomial Expansion
- Differentiation
- Integration
- Vectors
- Exponentials and Logarithms



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# Statistics

- Data Collection
- Data processing, presentation and interpretation
- Probability
- The Binomial Distribution
- Hypothesis Testing



# Mechanics

- Kinematics
- Forces and Newton's Laws of motion
- Variable Acceleration



# Assessment

- A level Mathematics is examined entirely at the end of Year 13
- Three 2 hour examination papers
  1. Pure Maths and Mechanics, 100 Marks
  2. Pure Maths and Statistics, 100 Marks
  3. Pure Maths and Comprehension, 75 Marks



# How much work?

- Lessons:  
4 hours per week
- Study Periods:  
2 hours per week (in school)
- Homework:  
5 to 7 hours per week

This comes to 12 hours per week !



# Expectations

You will attain a  
minimum **grade 7** in  
GCSE Mathematics



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# Expectations

You have CHOSEN to  
do this course –  
remember that nobody  
is forcing you!



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# Expectations

You must complete the  
work on time and to a  
good standard



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# Expectations

You must attend all lessons – electronic registers will alert us to absence



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# Expectations

Ensure you respect the materials that we LOAN you. They must be returned!



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# Timescale

## September

Course begins

Diagnostic test by end of week

3



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# The right choice?

Ask yourself, 'have I made the right choice?'

If you're going to work hard & put in the hours, then yes you have!



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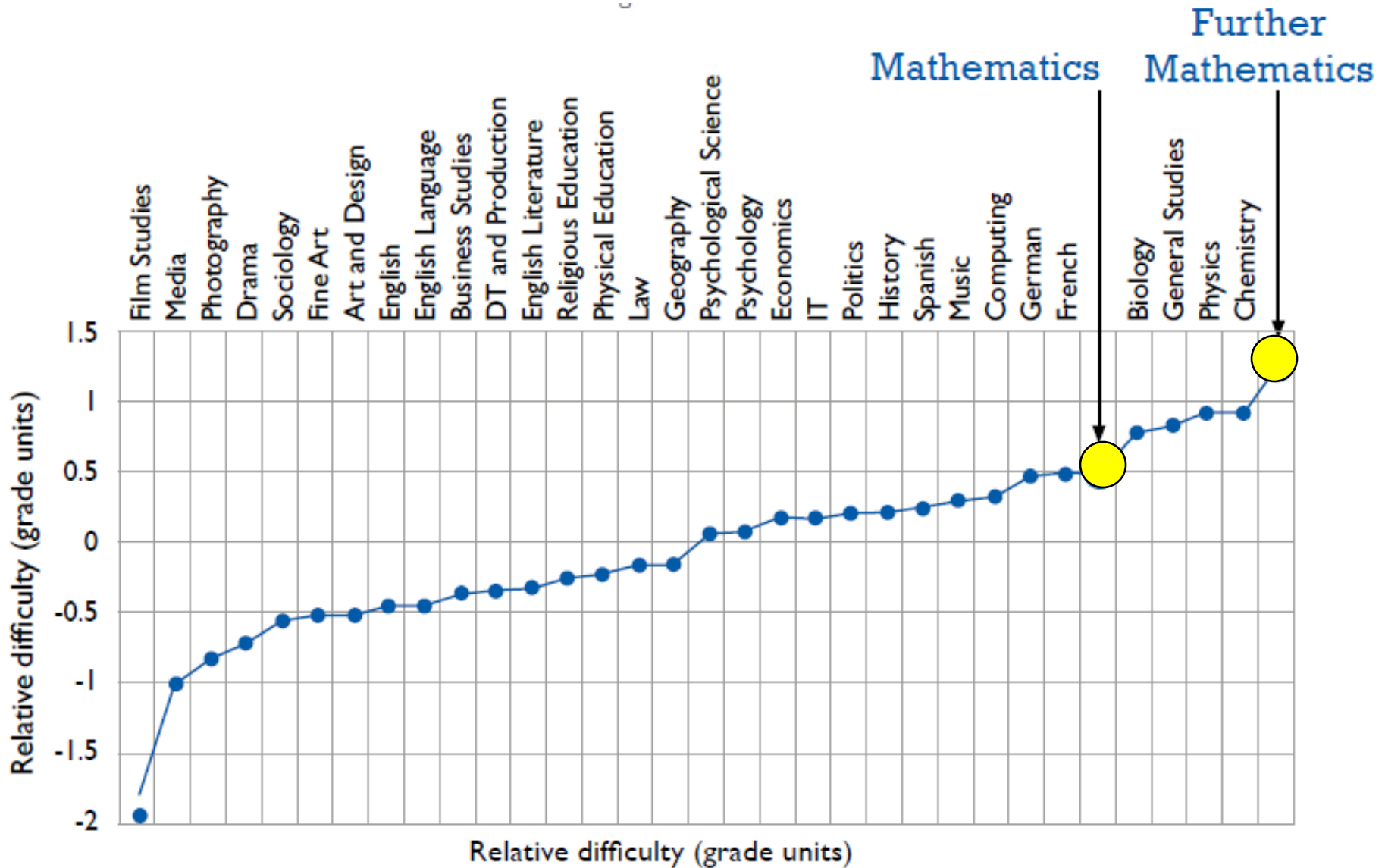
Mathematics is considered to be one of the most challenging A levels.

Not everyone is going to get a grade A



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# How hard is Maths?



# Support

Excellent textbooks  
(with answers)

IntegralMaths website –  
superb online support

New SharePoint



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# Support

After school support lessons

Your teacher – the course is designed to challenge you – so ASK for help – don't struggle on your own!



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# Further Maths?

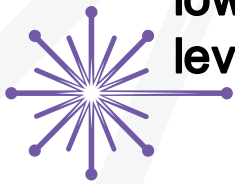
A few examples

## University College London Mathematics

**“It should be emphasised that we have been accepting students with a single Mathematics A level for many years. Due to the demanding nature of our courses however, the department would strongly encourage all prospective students, if possible, to study Further Mathematics, at least to AS level.”**

## Queen Mary, University of London Mathematics

**“We run a flexible admissions policy and tailor our offer to match your educational background. We normally accept one grade lower in A level Mathematics if you have also passed AS or A level Further Mathematics.”**



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# What next?

We need you fresh and ready to go in September & not rusty!

<http://bit.ly/ASMathsPrep>

Work through this online material before September for the best possible start



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# Now it's your turn

A problem worthy of attack  
proves its worth by fighting  
back!



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# Problems...

Expressions

Origami

Venn



Ladder

Quadratic powers



# Quadratic Powers

How many valid solutions exist where

$$(x^2 - 7x + 11)(x^2 - 5x + 6) = 1$$

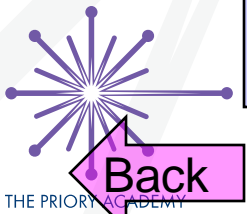
?

A: 2

B: 3

C: 4

D: 5



Back

# Expressions

Name a value of  $x$  which makes this list of expressions ascend in order.

For what range of values is this true?

$$2x$$

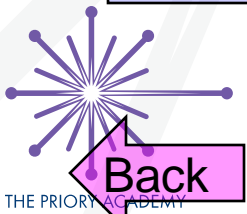
$$\frac{1}{x}$$

$$x$$

$$x^2$$

$$1 - x$$

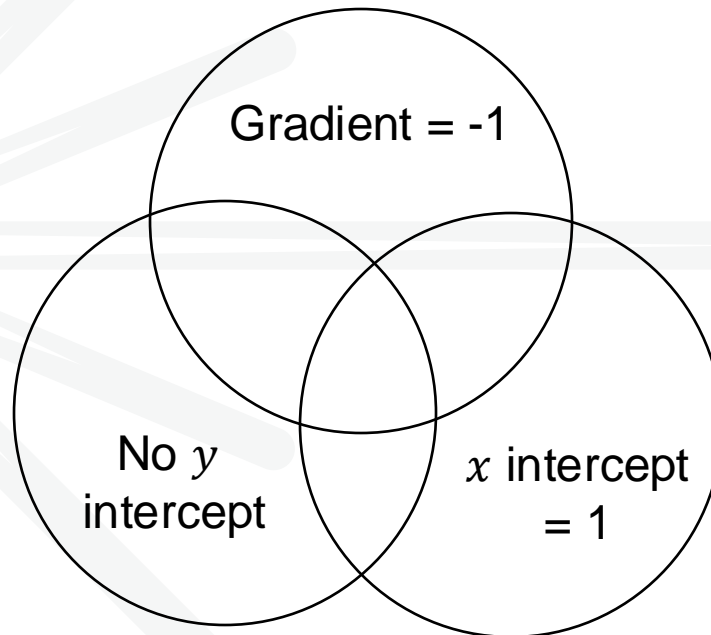
$$\frac{1}{x^2}$$



Back

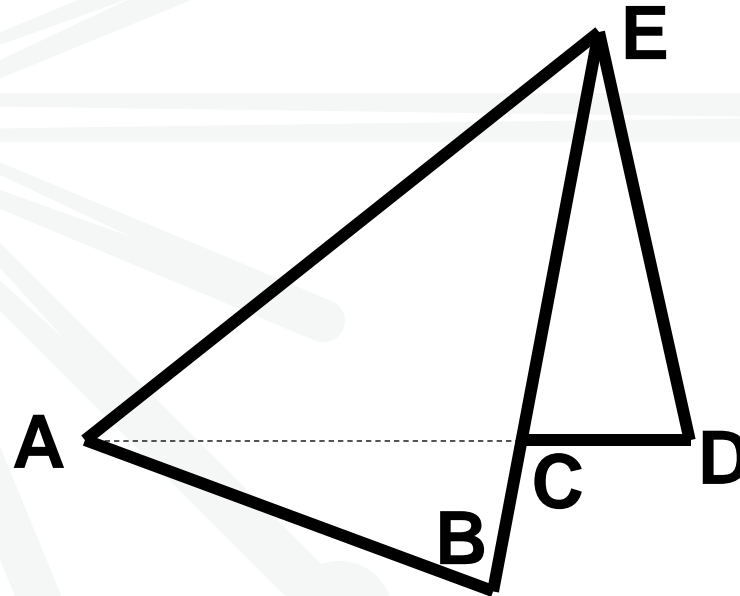
# Venn...

Can you find a graph for each section?



# Origami...

A 3 by 4 rectangle is folded along one of its diagonals to form the pentagon ABCDE as shown. What is the perimeter of this pentagon?



# Ladder...

A 3m ladder is rested against a wall. Between the wall and the base of the ladder is a garden storage box which is a 1m cube. What is the maximum distance up the wall the ladder can reach?

