Great Marlow School

Excellence • Compassion • Integrity

MATHEMATICS LEARNING LADDER

GCSE - All levels

Our first principal is that mathematics is an inclusive subject. By fostering a positive mindset where 'everyone is a mathematician' we create equal opportunity for all our students irrespective of previous experience, prior learning and special educational need. On their journey through the maths curriculum, GMS students will become numerate, skilful and knowledgeable mathematicians which in turn will empower them to realise their potential and prepare them for their future career needs.

GCSE EXAMS

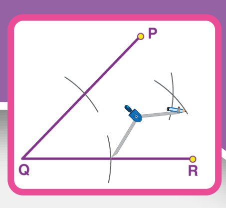
Papers 1, 2, 3
MAY/JUNE

Re-cap on all the topics learnt throughout Years 10 and 11.
Extra revision classes will be offered for most topics in the run up to GCSE exams.

Summer Term
Revision
ALL LEVELS

Listing and Describing

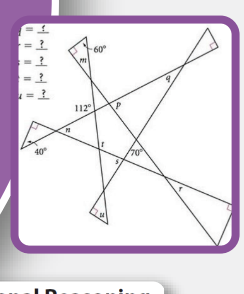
Transforming and Constructing



Algebraic Reasoning

$a_{n+1} - a_n = 0n$
$\Rightarrow \sqrt{2 + a_n} - a_n = 0$
$\Rightarrow \sqrt{2 + a_n} = a_n$
$\Rightarrow 2 + a_n = a_n^2$
$\Rightarrow a_n^2 - a_n - 2 = 0$

Geometric Reasoning



Proportional Reasoning

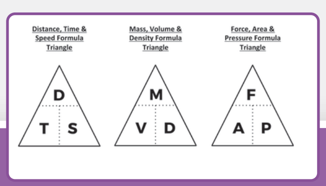
$\frac{30}{100} = \frac{?}{400}$ ←part ←whole

$= \frac{120}{400}$

MOCK EXAMS

FEBRUARY/MARCH

Multiplicative Reasoning



Functions

RULES FOR FINDING THE INVERSE $f^{-1}(x)$:
- **Step 1:** Write out the function as $y = \ldots$
- **Step 2:** Swap the x and y
- **Step 3:** Make y the subject
- **Step 4:** Instead of $y=$ write $f^{-1}(x) =$

Spring Term
FOUNDATION & HIGHER LEVEL

Changing the Subject

$m = 3t - 8$
$m - 8 = 3t$
$\frac{m - 8}{3} = t$

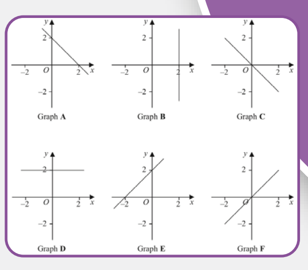
Expanding and Factorising

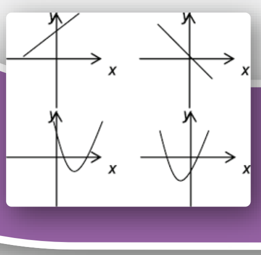
Factorising

$3x + 6 = 3(x + 2)$

Expanding brackets

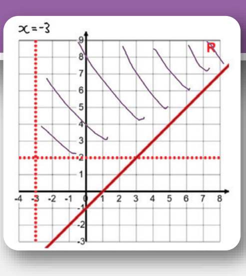
Using Graphs





Gradients and Lines

Non-linear Graphs



Autumn Term
FOUNDATION & HIGHER LEVEL

*NB: Higher Level students will study the same topics but a different level of content

YEAR 11

What you will learn for GCSE

In Year 11 students further develop knowledge, skills and application of mathematical methods and concepts. We also aim to fill in any gaps in their knowledge by providing support and guidance to ensure students are confident and prepared for their GCSE examination.

Indices & Roots

$\frac{a}{3} = \frac{2 - 7x}{x - 5}$
$a(x - 5) = 3(2 - 7x)$
$ax - 5a = 6 - 21x$
$ax + 21x = 6 + 5a$
$x(a + 21) = 6 + 5a$
$x = \frac{6 + 5a}{a + 21}$

Manipulating Expressions

MOCK EXAMS

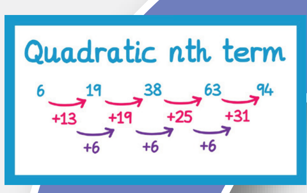
MAY/JUNE

Laws of indices

$a^m \times a^n = a^{m+n}$
$a^m \div a^n = a^{m-n}$
$(a^m)^n = a^{m \times n}$

Non-Calculator Methods

Quadratic nth term



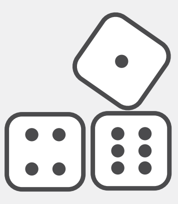
$a_n = a_1 + (n - 1)d$

Types of Number and Sequences

Delving into Data

Summer Term
FOUNDATION & HIGHER LEVEL

Probability



Percentages & Interest

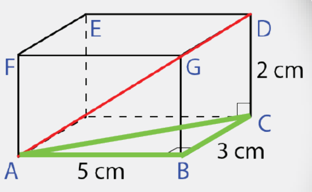
$0.5 \quad 1\frac{1}{2} \quad 50\%$

DECIMAL FRACTION PERCENTAGE

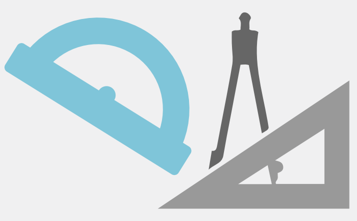
Ratios and Fractions

$2 : 1 = \frac{2}{1}$

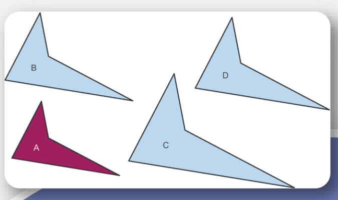
Ratio Fraction



Vectors

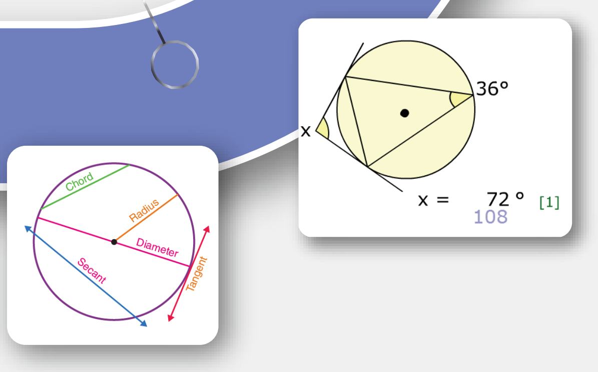


Angles & Bearings

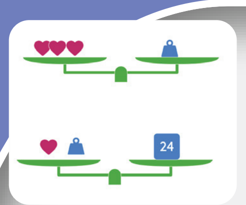


Working with Circles

Spring Term
FOUNDATION & HIGHER LEVEL

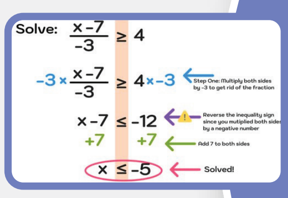


Simultaneous Equations

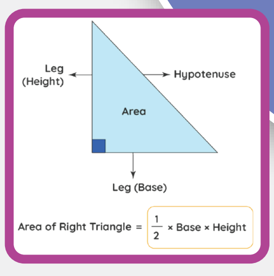


3x=y
x+y=24

Equations & Inequalities



Trigonometry



CONGRUENT SHAPES

same shape same size

Autumn Term
FOUNDATION & HIGHER LEVEL

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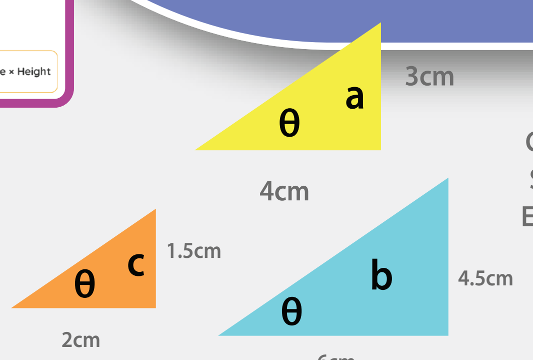
Congruency Similarity & Enlargement



What you will learn for GCSE

In Year 10 students will study numeracy; algebra; proportional reasoning; shape and space; statistics and probability; building on the knowledge gained during Key Stage 3. There is also an increased emphasis on the application of these skills

YEAR 10

YEAR 10 ◀ CLICK ON ANY YEAR BUTTONS TO TAKE YOU TO AN **IN-DEPTH LEARNING JOURNEY** FOR THAT YEAR