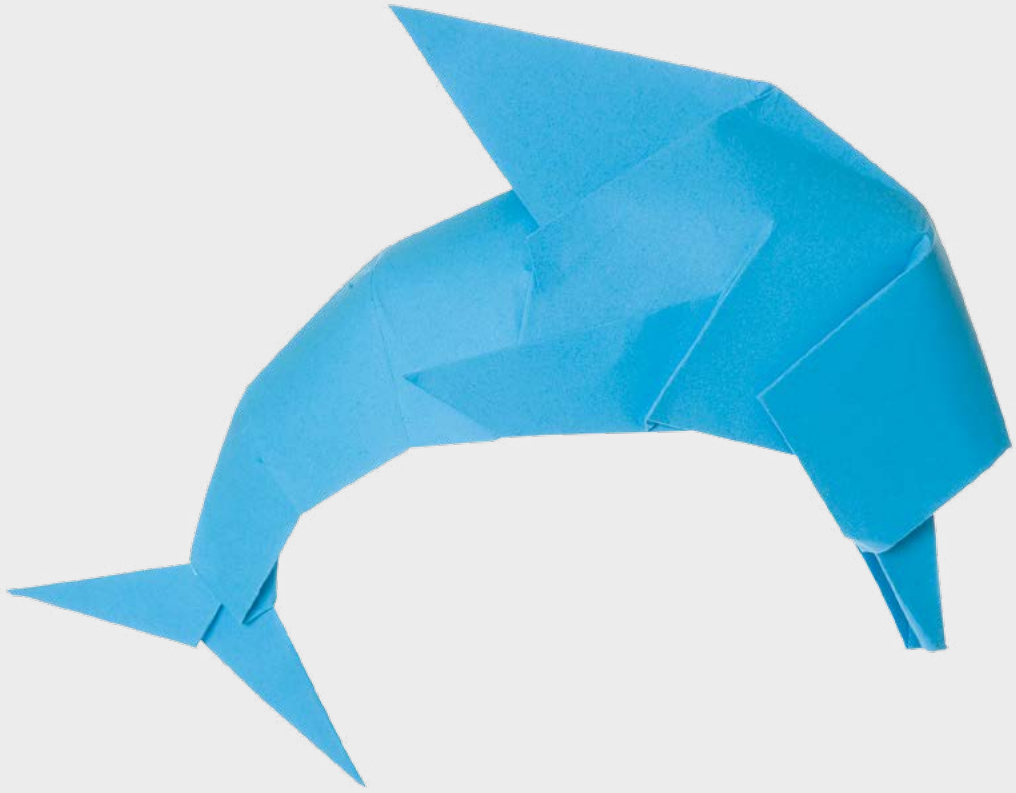
edexcel

GCSE Mathematics 2015:
explaining the changes

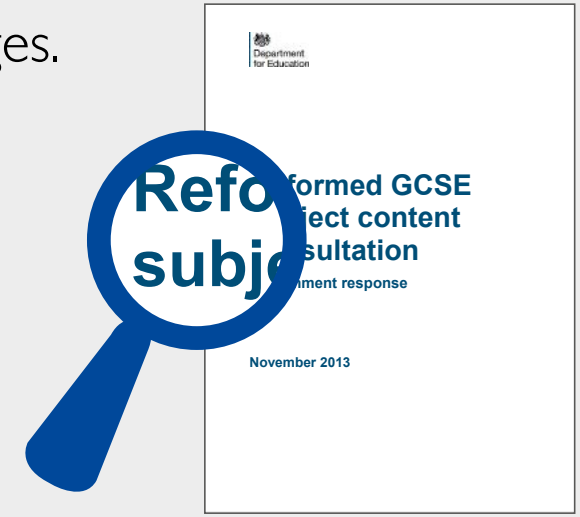


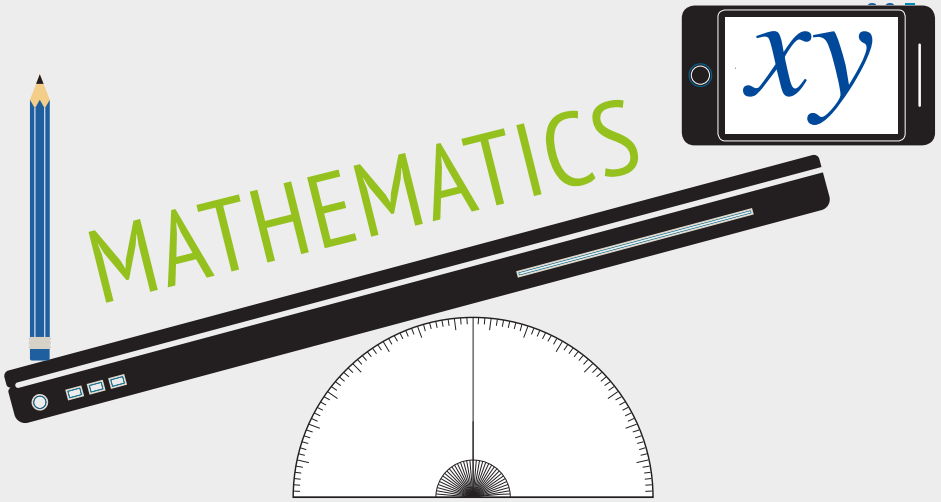
Introduction

Mathematics education is undergoing reform across all key stages.

- new Primary curriculum
- new Key Stage 3 curriculum from September 2014
- from September 2015 schools will be starting to teach new GCSEs

New GCSE qualifications for first examinations in 2017.





Here, we'll help explain the reforms and regulatory changes happening at Key Stage 4

GCSE Mathematics reform

GCSE qualifications are being reformed to ensure they're **rigorous** and **robust** and give students access to high quality qualifications which match expectations in the highest performing jurisdictions.

Pearson's own **international benchmarking research** shows that our Edexcel GCSE Mathematics qualifications are comparable with those assessments of some of the world's highest performing jurisdictions.

Our **engagement with a wide range of stakeholders** including employers and mathematics teachers tells us that more can be done to:

ensure students with a pass at GCSE have the numerical skills required to progress to **employment**

stretch the most able students and **prepare** them more thoroughly for the study of **A level** mathematics

embed **problem solving** more rigorously in teaching, learning and assessment.

These reforms can help to ensure our qualifications are world class and help students to learn for a better future.

Regulatory context

Over the past year, we've been working with **Department for Education** who are responsible for the content, content weightings and assessment objectives of the new GCSEs, and **Ofqual** the regulator, responsible for the more technical aspects of the reformed qualification.

The new GCSE Mathematics qualification will require greater teaching time to accommodate the increase in the volume of content and the demand of the assessments.

Content domains

The new GCSE Mathematics content has been divided into six main domains:

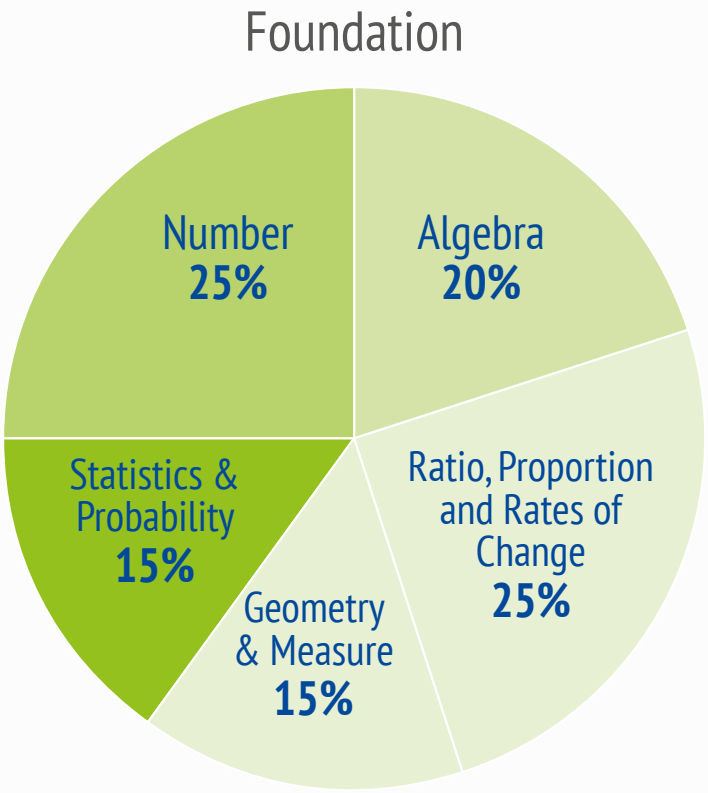
1. **Number** 1 2 3 4 6 7 8 9
2. **Algebra** (X+1) (X-2)
3. **Ratio, proportion and rates of change** 4:2
4. **Geometry and measures** 

5. **Probability** 
6. **Statistics**

Now makes up a separate domain.

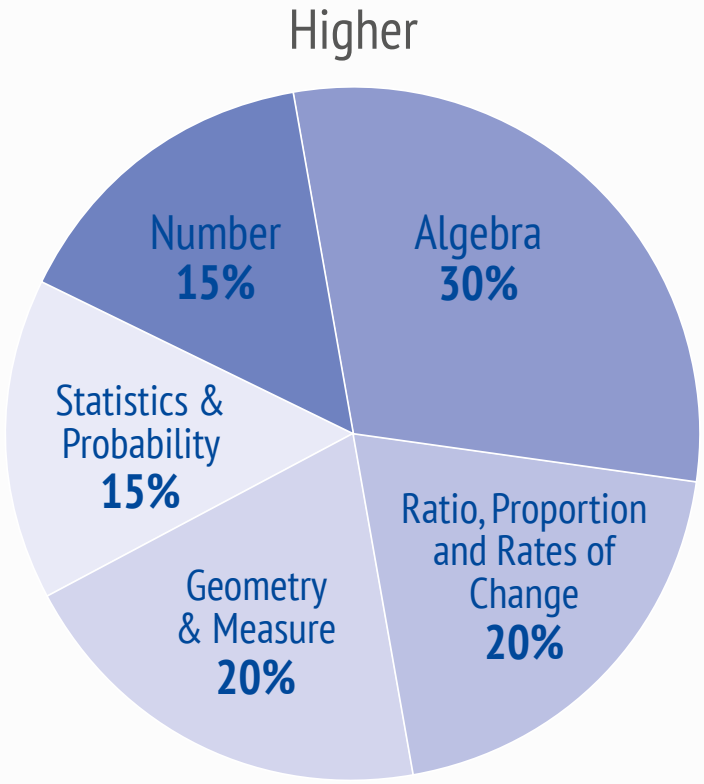
Content weightings

Foundation tier papers will assess the different content domains in these proportions:



There is a greater emphasis on ratio, proportion and rates of change at Foundation tier.

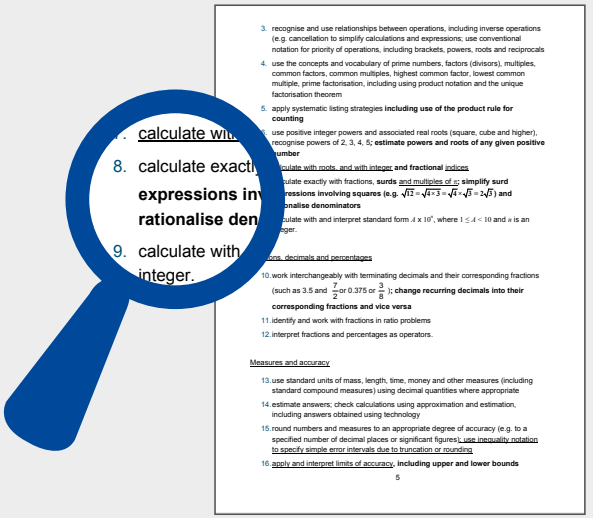
Higher tier papers will assess the different content domains in these proportions:



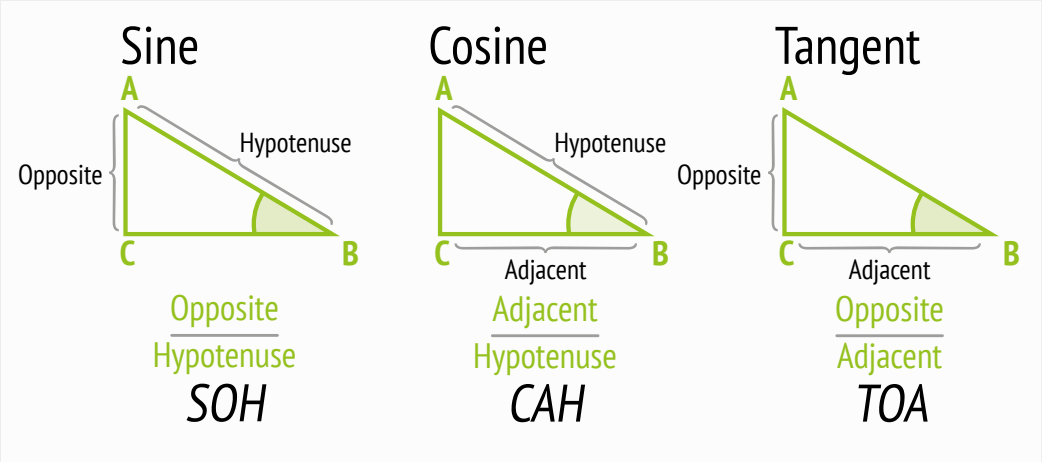
There is a greater emphasis on algebra at Higher tier, as this is the vehicle for progression to A level Mathematics.

Changes to content

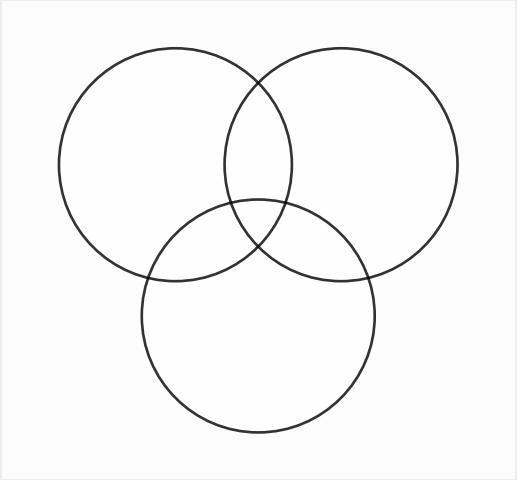
The reformed GCSE will require the coverage of broader and deeper mathematical content.



Content previously expected from **Higher** tier students only ➔ now expected at **Foundation** tier too, such as:



There's new content added to both tiers, such as Venn diagrams.



New content added to Higher tier for more able students, such as:

'interpret areas under graphs'

sketch the graph of y = tan x

Changes to assessment

There are changes that will significantly impact what future papers look like and how we report attainment.

- ✓ new assessment objectives
- ✓ a new grading structure
- ✓ tiering arrangements
- ✓ formulae sheets
- ✓ total assessment time

Assessment objectives

The new GCSE assessments have been designed to meet three key assessment objectives. We're likely to see an increase in challenge of questions and the papers at both tiers.

AO1 is about using and **applying standard techniques,** similar to the current AO1

50% foundation
40% higher

AO2 has a different focus. It's about **reasoning, interpreting and communicating** mathematically

25% foundation
30% higher

AO3 is about solving problems with a much greater focus on **solving non-routine problems** in mathematical and non-mathematical contexts.

25% foundation
30% higher

There is no longer a requirement to assess Quality of Written Communication and functional elements.

A new grading structure

1 (lowest) to **9** (highest)

1 to 9

Tiering arrangements

We'll continue to have two tiers:

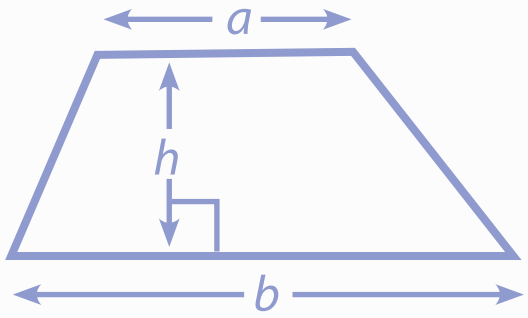
Foundation (grades 1-5 available) **Higher** (grades 4-9 available)

We've already seen that these may be different to current Foundation and Higher tiers in terms of content.
The same is true of the assessments.

Formulae sheets

Fewer formulae will be provided for students. Students will need to memorise and recall some formulae, such as:

Area of trapezium $= \frac{1}{2}(a + b)h$



The Quadratic Equation

The solutions of $ax^2 + bx + c = 0$ where $a \neq 0$, are given by

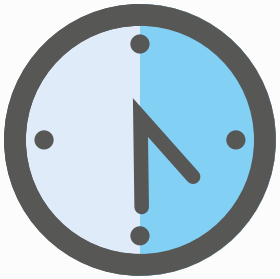
$$x = \frac{-b \pm \sqrt{(b^2 - 4ac)}}{2a}$$

We know the new GCSE Mathematics qualification is bigger in size.

Content is broader and deeper

Greater emphasis on **mathematical reasoning, communication** and **problem solving** skills.

Total assessment time



Increased to cover the increased content and set of skills to be assessed

4hrs 30 minutes

1 hour longer than the current linear Pearson Edexcel GCSE Mathematics qualification.

Thanks for reading! We hope you've found this content useful.