

Pearson Edexcel GCSE (9–1) Mathematics



A guide to our
assessment

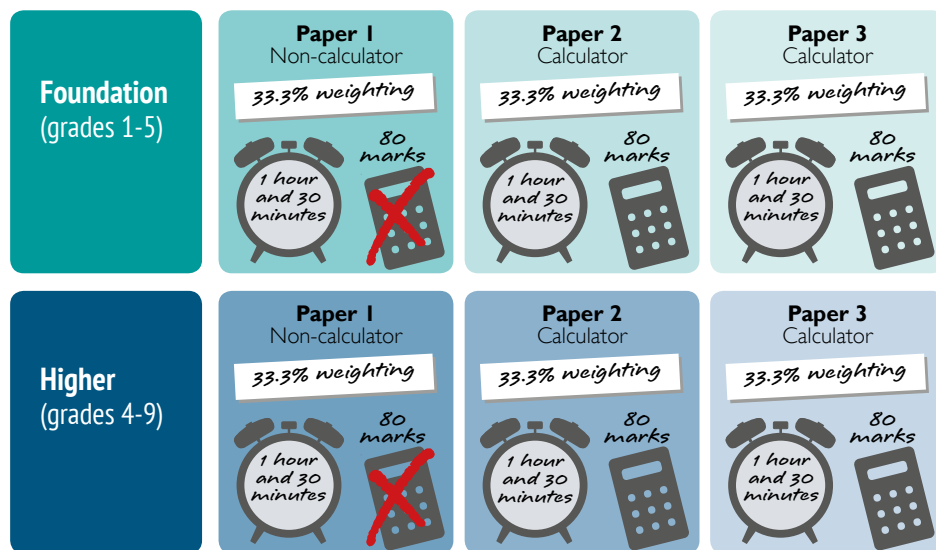
We've designed our assessment to be **accessible** to the **full range** of your learners, yet challenge your **most able** students. Our papers gradually build in demand and are designed to help your students approach the exams with confidence.

This guide shows you the approach we've taken to our assessment to give you a closer look into how they're designed.

Structure and features

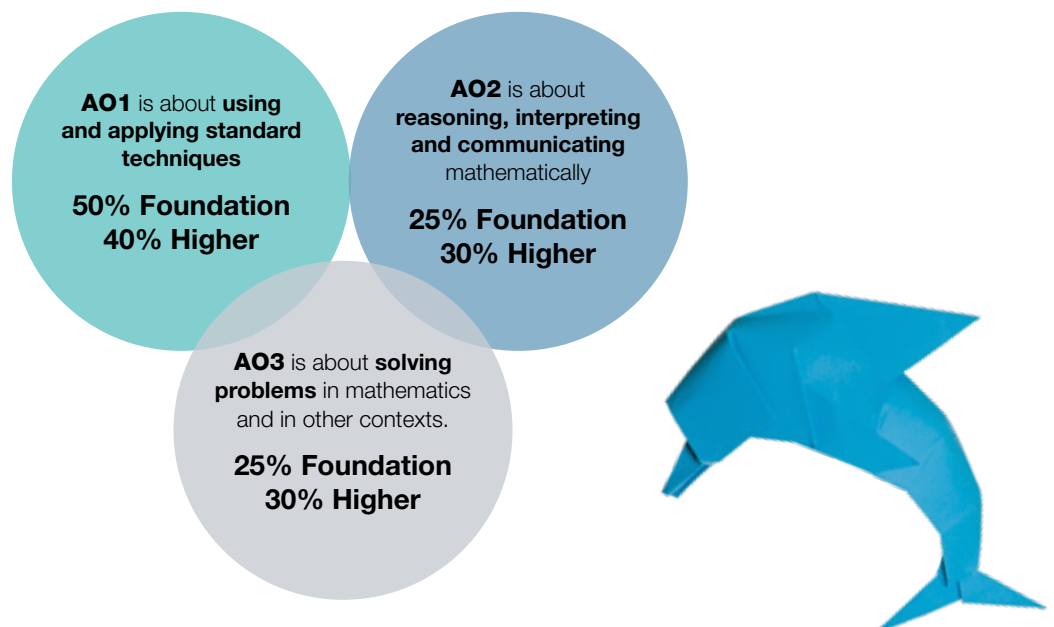
Pearson GCSE (9–1) in Mathematics

Our GCSE (9–1) in Mathematics is assessed through three equally-weighted written examination papers at either Foundation tier or Higher tier. Paper 1 is the only non-calculator paper.



Assessment Objectives

The diagram below gives an overview of the three Assessment Objectives. The strands and elements that further define each Assessment Objective are detailed in the specification. Every strand and element must be assessed in every examination series.



Grade Structure

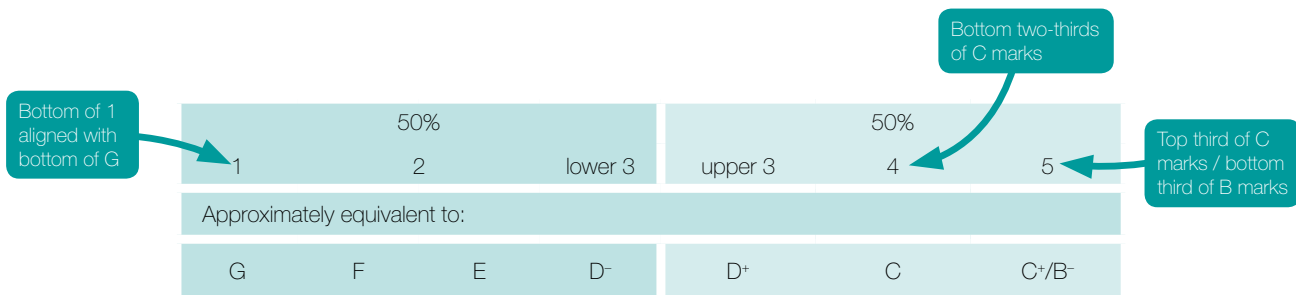
- Questions are targeted at grades 1–5 at Foundation tier and at grades 4–9 at Higher tier.
- The overlapping grades across the two tiers are grades 4 and 5. Students who fall slightly below the grade 4 boundary on Higher tier may be awarded a grade 3, however there will be no questions actively targeting grade 3 on Higher tier papers.

Ofqual have defined ‘anchor points’ that provide broad proportions and alignments between the old A*–G and the 9–1 GCSE grading systems.

Foundation Tier

Foundation papers now start at, and reach, a higher level. Previously, 25% of questions were targeted at grades D/C, but now 50% of questions in each paper are targeted at upper 3 to 5 grades (equivalent to D+ to B-), therefore more questions target the top grades.

In the 9–1 Foundation papers, marks will be allocated like this:

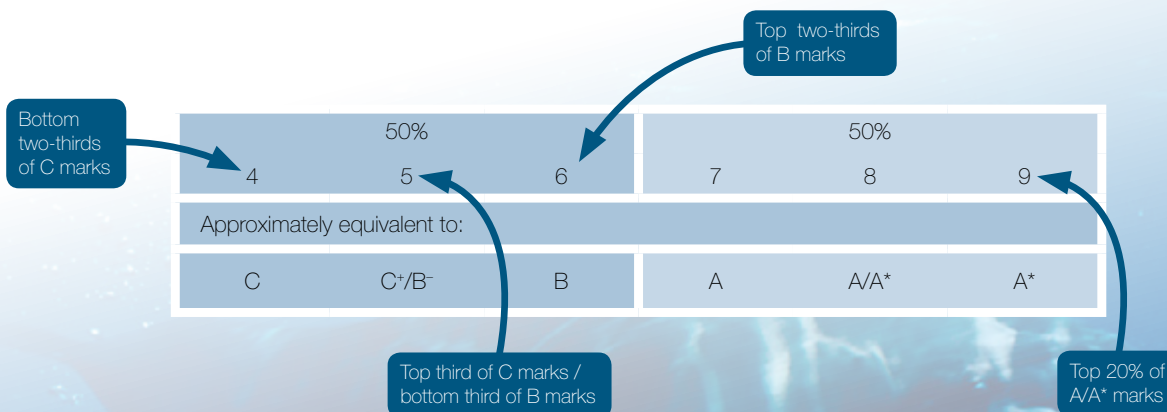


Higher Tier

Higher tier papers now start at a Higher level (with questions targeting grade 4) than in the legacy GCSE, which had questions targeting grade D (broadly aligned to grade 3).

The 9–1 Higher tier papers will cover 6 grades instead of 5, allowing for more differentiation at the top end of the grades. Previously, 25% of questions were targeted at A/A*, but now 50% of questions in each paper are targeted at the equivalent grades, 7–9.

In the 9–1 Higher papers, marks will be allocated like this:



Assessment Style

Question style

Our papers begin with low(er) demand questions to encourage students' engagement and build confidence early on. Our Foundation papers start with short one mark questions usually assessing basic number skills to ease students into the paper. This has been widely judged to be a more meaningful and accessible questioning style method than other forms of assessment such as multiple choice which can encourage guessing and doesn't always engage students in the same way.


Use of language

Our professional language experts ensure that wording used in our examination papers is clear and accessible. When writing papers our examiners focus on clarity of language to facilitate understanding - it's not simply about counting words. Here are some of the principles we follow:

What we do:	What we avoid doing:
<p>We use simple and short sentence structures to minimise unnecessary burden on memory and interpretation.</p> <p>We minimise the number of words used and ensure every word has a purpose.</p> <p>We make sure each sentence contains information which is necessary for students to be able to answer questions.</p> <p>We use simple verbs rather than the related abstract nouns.</p> <p>Where there is a diagram, where appropriate we explain in words what is happening in the diagram. This reinforces what the diagram is showing and makes the question more accessible.</p>	<p>We avoid using elaborate phrases and metaphors which introduce unnecessary complexity.</p> <p>We avoid embedding more than one question in a single sentence so that key information is not missed.</p> <p>We avoid the use of negatives where possible and words with a negative connotation because they can be difficult for students with weaker English skills to understand. Where negatives are essential we put them in bold type to ensure that students notice it.</p>

Formulae

19 Shape S is one quarter of a solid sphere, centre O.




Shape S

The volume of S is $576\pi \text{ cm}^3$

Find the surface area of S.
Give your answer correct to 3 significant figures.
You must show your working.

Volume of sphere = $\frac{4}{3}\pi r^3$

Surface area of sphere = $4\pi r^2$



Allowed formulae are given in a question where they need to be used, rather than in a formula sheet. You can find a list of these formulae in the Specification.

June 2018, 2H, Q19

Take a look at our formulae posters to see what formulae students need to memorize for the exams.
[quals.pearson.com/formulaeposters](https://www.quals.pearson.com/formulaeposters)

Progression of demand

- All papers begin with questions that target lower grades (to provide a gentle start to the papers).
- The level of demand gradually increases throughout the paper.
- Questions that target upper grades are towards the end of the paper.
- Level of demand also increases within some questions (to increase accessibility throughout the paper).

Familiar layout

26 Here is a triangular prism.

Work out the volume of the prism.
Give your answer correct to 3 significant figures.

Question 26, Paper 2F, June 2018

Question	Answer	Mark	Mark scheme	Additional guidance
20	140	P1	for beginning to solve the problem eg $50 \div 5 \times 8 (=80)$ or $14 : 8 : 5$ or $14 : 8$ and $8 : 5$ or (linked)	50 may be seen as the ratio 50 : 50
		P1	for a full process to solve the problem eg " $80" = 4 \times 7$ or $\frac{50}{5} \times "14"$ or $140 : 80 : 50$	
		A1	cao	If 140 clearly identified as houses in working award full marks

The same clear layout of questions you're familiar with

Large, clear diagrams

Clear and easy to follow mark scheme

Mark scheme

Introducing P mark

20 In a village

the number of houses and the number of flats are in the ratio 7 : 4
the number of flats and the number of bungalows are in the ratio 8 : 5

There are 50 bungalows in the village.

How many houses are there in the village?

Question 20, Paper 1F, June 2018 (medium demand)

Question	Answer	Mark	Mark scheme	Additional guidance
20	140	P1	for beginning to solve the problem eg $50 \div 5 \times 8 (=80)$ or $14 : 8 : 5$ or $14 : 8$ and $8 : 5$ or (linked)	50 may be seen as the ratio 80 : 50
		P1	for a full process to solve the problem eg " $80" = 4 \times 7$ or $\frac{50}{5} \times "14"$ or $140 : 80 : 50$	
		A1	cao	If 140 clearly identified as houses in working award full marks

Additional guidance column provides more information on how marks are awarded

The **P mark** is a mark that can be awarded to a proof, a process, a numerical solution to a problem, or for evaluation of A03. This means students have more opportunities to get marks for their working out.

Mark scheme

Assessment - Foundation papers

Our Foundation papers are designed to be accessible to all learners working towards grades 1-5 through gradual ramping of demand.

Journey through Number

1 Write 6324 correct to the nearest thousand.

Low demand question

(Total for Question 1 is 1 mark)

Question 1, Paper 1F, June 2018

20 Azmol is paid £1500 per month.
He is going to get a 3% increase in the amount of money he is paid.
Work out how much money Azmol will be paid per month after the increase.

Medium demand question

£.....

(Total for Question 20 is 2 marks)

Question 20, Paper 1F, June 2017

23 Work out 54.6×4.3

High demand question

Question from non-calculator paper

(Total for Question 23 is 3 marks)

Question 23, Paper 1F, June 2017

19
(b) Work out $1\frac{1}{5} + \frac{3}{4}$
Give your answer as a mixed number in its simplest form.

Question from non-calculator paper

High demand question

Question 19b, Paper 1F, June 2018

Assessment - Higher papers

Our Higher papers gradually progress in level of demand to provide coverage from grade 4 to 9 and adequately challenge higher attainers.

Journey through Algebra

1(c) Simplify $\frac{32q^9r^4}{4q^3r}$

Question from non-calculator paper

(2)

Low demand question

Question 1c, Paper 2H, June 2018

11 Solve $\frac{3x-2}{4} - \frac{2x+5}{3} = \frac{1-x}{6}$

$x =$

(Total for Question 11 is 4 marks)

Medium demand question

Question 11, Paper 2H, June 2017

20 Solve algebraically the simultaneous equations

$$\begin{aligned}x^2 + y^2 &= 25 \\ y - 3x &= 13\end{aligned}$$

High demand question

Question 20, Paper 1H, June 2017



Assessment – common questions

Grades 4 and 5 are the overlap grades between Foundation and Higher tiers. Common questions targeted at these grades will appear towards the end of Foundation and at the start of Higher papers respectively (those questions will be identical and in the same order). At least 20% of the marks available in each paper are allocated to the common questions.

- 3 Renee buys 5 kg of sweets to sell.
She pays £10 for the sweets.
- Renee puts all the sweets into bags.
She puts 250 g of sweets into each bag.
She sells each bag of sweets for 65p.
- Renee sells all the bags of sweets.
- Work out her percentage profit.

Clear and accessible language

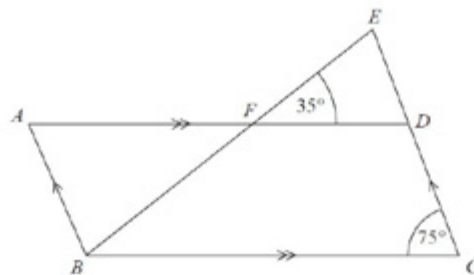
AO3 question – translating problems in non-mathematical contexts into a series of mathematical processes

Question 2 Paper 1H/ Question 20
Paper 1F, June 2018

Clearly laid out expectations

Numeracy assessed in context

3



Question from non-calculator paper

Using angle properties in more complex setting

AO2 question – making deductions to draw conclusions from mathematical information

$ABCD$ is a parallelogram.
 EDC is a straight line.
 F is the point on AD so that BFE is a straight line.

Angle $EFD = 35^\circ$
Angle $DCB = 75^\circ$

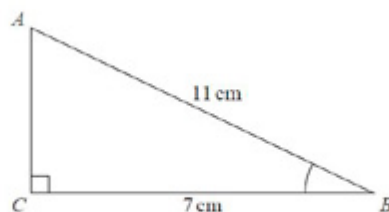
Show that angle $ABF = 70^\circ$
Give a reason for each stage of your working.

Show that' gives you a hint that AO2 mathematical reasoning and communication is being assessed.

(Total for Question 3 is 4 marks)

Question 2 Paper 1H/Question 25 Paper 1F, November 2017

- 5 ABC is a right-angled triangle.



AO1 question – accurately recalling facts, terminology and definitions and accurately carrying out routine procedures

- (a) Work out the size of angle ABC .
Give your answer correct to 1 decimal place.

Assessing trigonometry without context

(Total for Question 3 is 4 marks)

Question 5a Paper 3H/Question 23 Paper 3F, June 2018

Problem solving

Example from Foundation Paper

- 6 Sue has 2 cats.
Each cat eats $\frac{1}{4}$ of a tin of cat food each day.
Sue buys 8 tins of cat food.
Has Sue bought enough cat food to feed her 2 cats for 14 days?
You must show how you get your answer.

Question 6, Paper 1F, November 2018

AO3 question - translate in non-mathematics contexts into a series of mathematics processes

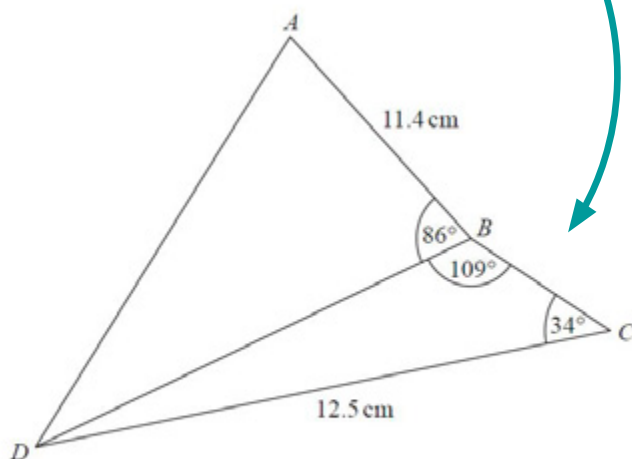
Students need to interpret results in the context of the problem

Clear and accessible language

Number assessed in a straightforward context

Example from Higher Paper

17



Clearly labelled diagram

Both visual and written representation of the context given

Work out the length of AD .
Give your answer correct to 3 significant figures.

(Total for Question 17 is 5 marks)

Question 17, Paper 3H, June 2018 (calc)

Consistent command words

Problem set in a mathematical context

Measuring Progress

Tools to help you measure your students' progress

A wide range of free online and offline support and materials are available to help you measure and assess your students' progress over time.

Practice Papers

We have seven sets of practice papers, each with 3 papers at both Foundation and Higher tier. That's a total of 42 practice papers.

We have created a large range of assessments to help you measure the progress of your students, more than any other exam board!

Problem-solving practice

To help build your students' confidence with problem-solving we've got three sets of problem-solving questions available to download - that's 100 questions, 50 at Foundation tier and 50 at Higher tier. All available with bronze, silver and gold versions to help students gain a better understanding of how to tackle problem-solving questions and embed their skills.

Mock Papers

We have four sets of mock exam papers and mark schemes. Use these to assess your students' strengths and weaknesses in the lead up to the summer exam series and tailor your teaching support accordingly.

Themed papers and Topic Tests

These papers are aimed at students of all abilities. Some assess reasoning and communication and others test problem-solving. They all come with mark schemes and past average national performance data to help you track how well students have done in comparison with past cohorts.

Live papers

All our live exam papers are available on our website, along with mark schemes, grade boundaries and examiner reports.

You'll also find all the tests and assessments on our ActiveLearn and our problem solving bank!

Online feedback events

Available to view online, these recordings provide feedback on each summer exam series. Ideal to use in departmental meetings to explore the national performance of students, to take a closer look at selected questions and candidate responses.

Exemplars

We publish exemplar student responses to examination questions with examiner comments, to show you how the mark schemes have been applied and help you gain a deeper understanding of what's expected from your students in the examination.

Visit [quals.pearson.com/gcsemathssupport](https://www.pearson.com/gcsemathssupport) to view our maths support

ResultsPlus

ResultsPlus is a free online results analysis tool for teachers that gives you a detailed breakdown of your students' performance in Pearson Edexcel exams.

Widely used by teachers across the country, ResultsPlus provides the most detailed analysis available of your students' performance and helps you to identify topics and skills where your students could benefit from further learning, helping them gain a deeper understanding of maths.

Contextualises performance through 'skills map' reports, to show how students fared on topics, skills and types of question.



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examWizard

- examWizard is a free online resource for teachers containing a huge bank of past paper questions and support materials to help you create your own mock exams and tests.
- examWizard helps you search for past papers, mark schemes and examiners' reports.
- Create topic-based tests with the easy-to-use, intuitive question search.
- Build your own paper with the latest past paper questions as they become available after each exam series.
- Sample Assessment Materials and Specimen Papers are already included in the bank of questions.

Visit quals.pearson.com/examwizardgcsemaths

Access to Scripts

This online post-results service allows teachers to access their candidates' exam papers free of charge for all scripts that have been marked online.

Visit quals.pearson.com/mathsgcseats

Get in touch

For queries, information and support, we're here to help.

Call us on: **020 7010 2174**

Email us at: **TeachingMaths@pearson.com**

Visit us online at **quals.pearson.com/gcsemaths**

