

Paper 2		*Paper code: 1MA1/2F or 1MA1/2H
<ul style="list-style-type: none"> Externally assessed Availability: May/June and November** First assessment: May/June 2017 	33.33% of the total GCSE	
Overview of content <ol style="list-style-type: none"> Number Algebra Ratio, proportion and rates of change Geometry and measures Probability Statistics 		
Overview of assessment <ul style="list-style-type: none"> Written examination papers with a range of question types Calculator allowed 1 hour and 30 minutes (both Foundation and Higher tier papers) 80 marks available 		

*See *Appendix 2: Codes* for a description of this code and all other codes relevant to this qualification.

**See the *November resits* section for restrictions on November entry.

Paper 3		*Paper code: 1MA1/3F or 1MA1/3H
<ul style="list-style-type: none"> Externally assessed Availability: May/June and November** First assessment: May/June 2017 	33.33% of the total GCSE	
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**See the *November resits* section for restrictions on November entry.

Assessment Objectives and weightings

		% Foundation	% Higher
A01	<p>Use and apply standard techniques</p> <p>Students should be able to:</p> <ul style="list-style-type: none"> accurately recall facts, terminology and definitions use and interpret notation correctly accurately carry out routine procedures or set tasks requiring multi-step solutions. 	50	40
A02	<p>Reason, interpret and communicate mathematically</p> <p>Students should be able to:</p> <ul style="list-style-type: none"> make deductions, inferences and draw conclusions from mathematical information construct chains of reasoning to achieve a given result interpret and communicate information accurately present arguments and proofs assess the validity of an argument and critically evaluate a given way of presenting information. <p>Where problems require students to 'use and apply standard techniques' or to independently 'solve problems' a proportion of those marks should be attributed to the corresponding Assessment Objective.</p>	25	30
A03	<p>Solve problems within mathematics and in other contexts</p> <p>Students should be able to:</p> <ul style="list-style-type: none"> translate problems in mathematical or non-mathematical contexts into a process or a series of mathematical processes make and use connections between different parts of mathematics interpret results in the context of the given problem evaluate methods used and results obtained evaluate solutions to identify how they may have been affected by assumptions made. <p>Where problems require students to 'use and apply standard techniques' or to 'reason, interpret and communicate mathematically' a proportion of those marks should be attributed to the corresponding Assessment Objective.</p>	25	30
Total		100%	100%

Breakdown of Assessment Objectives into strands and elements

The strands and elements shown below will be assessed in every examination series, the marks allocated to these strands and elements are shown in the mark schemes.

AO1 Use and apply standard techniques	
Strands	Elements
1 – Accurately recall facts, terminology and definitions	1 – <i>accurately recall facts, terminology and definitions</i> Should be no more than 10% of AO1
2 – Use and interpret notation correctly	2 – <i>use and interpret notation correctly</i>
3 – Accurately carry out routine procedures or set tasks requiring multi-step solutions	3a – accurately carry out routine procedures
	3b – accurately carry out set tasks requiring multi-step solutions
AO2 Reason, interpret and communicate mathematically	
Strands	Elements
1 – Make deductions, inferences and draw conclusions from mathematical information	1a – make deductions to draw conclusions from mathematical information
	1b – make inferences to draw conclusions from mathematical information
2 – Construct chains of reasoning to achieve a given result	2 – <i>construct chains of reasoning to achieve a given result</i>
3 – Interpret and communicate information accurately	3a – interpret information accurately
	3b – communicate information accurately
4 – Present arguments and proofs	4a – present arguments
	4b – present proofs (higher tier only)
5 – Assess the validity of an argument and critically evaluate a given way of presenting information	5a – assess the validity of an argument
	5b – critically evaluate a given way of presenting information
AO3 Solve problems within mathematics and in other contexts	
Strands	Elements
1 – Translate problems in mathematical or non-mathematical contexts into a process or a series of mathematical processes	1a – translate problems in mathematical contexts into a process
	1b – translate problems in mathematical contexts into a series of processes
	1c – translate problems in non-mathematical contexts into a mathematical process
	1d – translate problems in non-mathematical contexts into a series of mathematical processes
2 – Make and use connections between different parts of mathematics	2 – <i>make and use connections between different parts of mathematics</i>
3 – Interpret results in the context of the given problem	3 – <i>interpret results in the context of the given problem</i>
4 – Evaluate methods used and results obtained	4a – evaluate methods used
	4b – evaluate results obtained
5 – Evaluate solutions to identify how they may have been affected by assumptions made	5 – <i>evaluate solutions to identify how they may have been affected by assumptions made</i>

Entry and assessment information

Student entry

Details of how to enter students for the examinations for this qualification can be found in our *UK Information Manual*. A copy is made available to all examinations officers and is available on our website at: www.edexcel.com/iwantto/Pages/uk-information-manual.aspx

Forbidden combinations and discount code

There are two tiers of entry available. Each student is permitted to take assessments in either the Foundation tier or Higher tier. All three papers must be from the same tier of entry and must be completed in the same assessment series.

Centres should be aware that students who enter for more than one GCSE or other Level 2 qualifications with the same discount code will have only the grade for their 'first entry' counted for the purpose of the School and College Performance Tables (please see *Appendix 2: Codes*). For further information about what constitutes 'first entry' and full details of how this policy is applied, please refer to the DfE website: www.education.gov.uk

Students should be advised that, if they take two GCSEs with the same discount code, schools and colleges to which they wish to progress are very likely to take the view that they have achieved only one of the two GCSEs. The same view may be taken if students take two GCSE or other Level 2 qualifications that have different discount codes but have significant overlap of content. Students or their advisers who have any doubts about their subject combinations should check with the institution to which they wish to progress before embarking on their programmes.

November resits

This qualification is available in both summer and November series. Entry to the November series is restricted. Students who take GCSE Mathematics in a November series must be at least 16 years of age on the preceding 31st August.

Please go to our website www.edexcel.com for further information.

Access arrangements, reasonable adjustments and special consideration

Access arrangements

Access arrangements are agreed before an assessment. They allow students with special educational needs, disabilities or temporary injuries to:

- access the assessment
- show what they know and can do without changing the demands of the assessment.

The intention behind an access arrangement is to meet the particular needs of an individual disabled student without affecting the integrity of the assessment. Access arrangements are the principal way in which awarding bodies comply with the duty under the Equality Act 2010 to make 'reasonable adjustments'.

Access arrangements should always be processed at the start of the course. Students will then know what is available and have the access arrangement(s) in place for assessment.

Reasonable adjustments

The Equality Act 2010 requires an awarding organisation to make reasonable adjustments where a person with a disability would be at a substantial disadvantage in undertaking an assessment. The awarding organisation is required to take reasonable steps to overcome that disadvantage.

A reasonable adjustment for a particular person may be unique to that individual and therefore might not be in the list of available access arrangements.

Whether an adjustment will be considered reasonable will depend on a number of factors, which will include:

- the needs of the student with the disability
- the effectiveness of the adjustment
- the cost of the adjustment; and
- the likely impact of the adjustment on the student with the disability and other students.

An adjustment will not be approved if it involves unreasonable costs to the awarding organisation, timeframes or affects the security or integrity of the assessment. This is because the adjustment is not 'reasonable'.

Special consideration

Special consideration is a post-examination adjustment to a student's mark or grade to reflect temporary injury, illness or other indisposition at the time of the examination/assessment, which has had, or is reasonably likely to have had, a material

effect on a candidate's ability to take an assessment or demonstrate his or her level of attainment in an assessment.

Further information

Please see our website for further information about how to apply for access arrangements and special consideration.

For further information about access arrangements, reasonable adjustments and special consideration, please refer to the JCQ website: www.jcq.org.uk.

Equality Act 2010 and Pearson equality policy

Equality and fairness are central to our work. Our equality policy requires all students to have equal opportunity to access our qualifications and assessments, and our qualifications to be awarded in a way that is fair to every student.

We are committed to making sure that:

- students with a protected characteristic (as defined by the Equality Act 2010) are not, when they are undertaking one of our qualifications, disadvantaged in comparison to students who do not share that characteristic
- all students achieve the recognition they deserve for undertaking a qualification and that this achievement can be compared fairly to the achievement of their peers.

You can find details on how to make adjustments for students with protected characteristics in the policy document *Access Arrangements, Reasonable Adjustments and Special Considerations*, which is on our website, www.edexcel.com/Policies.

Awarding and reporting

This qualification will be graded, awarded and certificated to comply with the requirements of the current GCSE and GCE Code of Practice, published by the Office of Qualifications and Examinations Regulation (Ofqual).

The GCSE (9 - 1) qualification will be graded and certificated on a nine-grade scale from 9 to 1 using the total subject mark where 9 is the highest grade. Individual components are not graded. For Foundation tier grades 1 – 5 are available, and for Higher tier grades 4 – 9 are available (grade 3 allowed).

The first certification opportunity for the Pearson Edexcel Level 1/Level 2 GCSE (9 - 1) in Mathematics will be in 2017.

Students whose level of achievement is below the minimum judged by Pearson to be of sufficient standard to be recorded on a certificate will receive an unclassified U result.

Language of assessment

Assessment of this qualification will be available in English. All student work must be in English.

Grade descriptions

The grade descriptions for this qualification are published by Ofqual and will be available on its website.



Other information

Student recruitment

Pearson follows the JCQ policy concerning recruitment to our qualifications in that:

- they must be available to anyone who is capable of reaching the required standard
- they must be free from barriers that restrict access and progression
- equal opportunities exist for all students.

Prior learning

The qualification builds on the content, knowledge and skills developed in the *Key Stage 3 Programme of Study for Mathematics* (published by the Department for Education in September 2013).

Progression

Students can progress from this qualification to Level 3 qualifications in numerate disciplines, such as:

- Core Mathematics
- GCE Mathematics and GCE Further Mathematics
- GCEs in the sciences
- GCE Geography
- GCE Psychology
- GCE Economics
- other qualifications that require mathematical skills, knowledge and understanding.

There is a clear progression path from Foundation tier to Higher tier within this qualification.

This qualification also supports further training and employment where mathematical skills are required.

Progression from GCSE

This qualification prepares students for progression to further study of mathematics at AS and A level, and also to the study of Core Mathematics. These Level 3 qualifications prepare students for a variety of further progression routes. Students should seek advice about which of these qualifications best prepares them for their intended progression routes.

GCSE Mathematics is a requirement for progression to a wide range of courses at Level 3. Students are expected to continue with their study of GCSE Mathematics after the age of 16 if they have not achieved the qualification at Key Stage 4.



Appendices

Appendix 1: Transferable skills	31
Appendix 2: Codes	33
Appendix 3: Formulae sheet	35





Appendix 1: Transferable skills

The need for transferable skills

In recent years, higher education institutions and employers have consistently flagged the need for students to develop a range of transferable skills to enable them to respond with confidence to the demands of undergraduate study and the world of work.

The Organisation for Economic Co-operation and Development (OECD) defines skills, or competencies, as 'the bundle of knowledge, attributes and capacities that can be learned and that enable individuals to successfully and consistently perform an activity or task and can be built upon and extended through learning.'¹

To support the design of our qualifications, the Pearson Research Team selected and evaluated seven global 21st-century skills frameworks. Following on from this process, we identified the National Research Council's (NRC) framework as the most evidence-based and robust skills framework. We adapted the framework slightly to include the Program for International Student Assessment (PISA) ICT Literacy and Collaborative Problem Solving (CPS) Skills.

The adapted National Research Council's framework of skills involves:²

Cognitive skills

- **Non-routine problem solving** – expert thinking, metacognition, creativity.
- **Systems thinking** – decision making and reasoning.
- **Critical thinking** – definitions of critical thinking are broad and usually involve general cognitive skills such as analysing, synthesising and reasoning skills.
- **ICT literacy** - access, manage, integrate, evaluate, construct and communicate³.

Interpersonal skills

- **Communication** – active listening, oral communication, written communication, assertive communication and non-verbal communication.
- **Relationship-building skills** – teamwork, trust, intercultural sensitivity, service orientation, self-presentation, social influence, conflict resolution and negotiation.
- **Collaborative problem solving** – establishing and maintaining shared understanding, taking appropriate action, establishing and maintaining team organisation.

¹ OECD (2012), Better Skills, Better Jobs, Better Lives (2012):<http://skills.oecd.org/documents/OECDSkillsStrategyFINALENG.pdf>

² Koenig, J. A. (2011) Assessing 21st Century Skills: Summary of a Workshop, National Research Council

³ PISA (2011) The PISA Framework for Assessment of ICT Literacy, PISA

Intrapersonal skills

- **Adaptability** – ability and willingness to cope with the uncertain, handling work stress, adapting to different personalities, communication styles and cultures, and physical adaptability to various indoor and outdoor work environments.
- **Self-management and self-development** – ability to work remotely in virtual teams, work autonomously, be self-motivating and self-monitoring, willing and able to acquire new information and skills related to work.

Transferable skills enable young people to face the demands of further and higher education, as well as the demands of the workplace, and are important in the teaching and learning of this qualification. We will provide teaching and learning materials, developed with stakeholders, to support our qualifications.



Appendix 2: Codes

Type of code	Use of code	Code number
Discount codes	Every qualification is assigned to a discount code indicating the subject area to which it belongs. This code may change. Please refer to our website (www.edexcel.com) for details of any changes.	RB1
National Qualifications Framework (NQF) codes	Each qualification title is allocated an Ofqual National Qualifications Framework (NQF) code. The NQF code is known as a Qualification Number (QN). This is the code that features in the DfE Section 96 and on the LARA as being eligible for 16–18 and 19+ funding, and is to be used for all qualification funding purposes. The QN is the number that will appear on the student’s final certification documentation.	The QN for the qualification in this publication is: [Ofqual to provide.] GCSE (9 - 1) – xxx/xxxx/x
Subject codes	The subject code is used by centres to enter students for a qualification. Centres will need to use the entry codes only when claiming students’ qualifications.	GCSE (9 - 1) – 1MA1
Paper/component code	These codes are provided for reference purposes. Students do not need to be entered for individual papers/components.	Paper 1: 1MA1/1F or 1MA1/1H Paper 2: 1MA1/2F or 1MA1/2H Paper 3: 1MA1/3F or 1MA1/3H



Appendix 3: Formulae sheet

This formulae sheet will be provided at the front of each examination paper.

Perimeter, area, surface area and volume formulae

Where r is the radius of the sphere or cone, l is the slant height of a cone and h is the perpendicular height of a cone:

$$\text{Curved surface area of a cone} = \pi r l$$

$$\text{Surface area of a sphere} = 4\pi r^2$$

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

$$\text{Volume of a cone} = \frac{1}{3}\pi r^2 h$$

Kinematics formulae

Where a is constant acceleration, u is initial velocity, v is final velocity, s is displacement from the position when $t = 0$ and t is time:

$$v = u + at$$

$$s = ut + \frac{1}{2}at^2$$

$$v^2 = u^2 + 2as$$





May 2014

For more information on Edexcel and BTEC qualifications please visit our websites: www.edexcel.com and www.btec.co.uk

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