This commentary highlights some of the key aspects of our specimen papers and shows the strategy behind our clean and clear approach to assessment.

There are a number of features common to all of our papers for this new specification. Our aim is to provide students with a fair opportunity to demonstrate their knowledge and understanding. Some of the ways we're working to achieve this are:

Clear language and layout

We have already removed unnecessary words from our recent exams, and have provided more space between questions to avoid 'frightening' students as they turn the page. These principles apply in this new specification.

Settling students from the start

In each paper, about 8 marks (10%) will be allocated to multiple choice questions. Each paper starts with four of these. They help settle students into the exam, but they are not easy marks. Students will be able to build confidence by giving an answer, but the 'wrong' options will often highlight inappropriate methodology or approach. Including these questions allows us to test a greater breadth of content across our examinations.

Formulae provided as they are required

There are no formulae sheets at the front of our papers. The Department for Education (DfE) requirements mean that students must know certain formulae. These include the trigonometry formulae, the quadratic formula and the formula for the area of a trapezium. A full list of the 'prescribed' formulae is an appendix to the specification. When a formula is required, and we are able to provide it, we will put this in the question, rather than challenging students to remember that they have a formulae sheet.

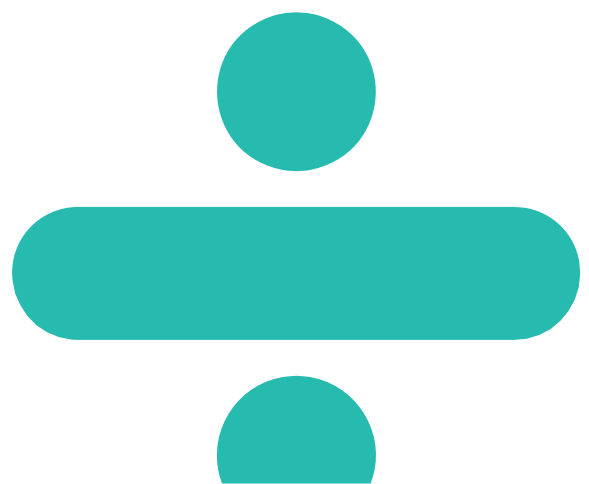## Gradual ramping of demand as the paper progresses

The demand of all AQA Maths papers increases steadily as students work through the paper.

- The first half of each tier F paper should contain many questions where students likely to achieve grades 1 and 2 can show their knowledge. The second half of each tier F paper will focus on questions that are designed to discriminate between grades 3,4 and 5, many of which will be common with tier H.

- The first half of each tier H paper will focus on grades 4,5 and 6, with at least 20 marks common with tier F. The second half of each tier H paper is designed to challenge and discriminate between the highest achieving students, targeting grades 7,8 and 9.

Appropriate marks for each question

Some questions now have fewer marks than they had in the past. This is a deliberate approach based on what we have learned from performance data of current questions and the approach taken in other high achieving countries. This also reflects the changes in assessment objectives. We are very confident that we can assess the full breadth of content and skills in 80 mark papers, ensuring that every mark counts and is focussed on what we want to test.

We also don't want to hide the most accessible AO1 marks behind more difficult AO2 and AO3 marks so we will minimise these where possible, allowing us to ask more single mark AO1 questions elsewhere.

Assessment objectives

Assessment objectives	Weighting	
	Higher	**Foundation**
AO1 **Use and apply standard techniques.** **Students should be able to:**	**40%**	**50%**
• accurately recall facts, terminology and definitions		
• use and interpret notation correctly		
• accurately carry out routine procedures or set tasks requiring multi-step solutions		
AO2 **Reason, interpret and communicate mathematically.** **Students should be able to:**	**30%**	**25%**
• 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		
AO3 **Solve problems within mathematics and in other contexts. Students should be able to:**	**30%**	**25%**
• 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		

Paper 1
Higher Tier

Paper 1 illustrates the consistent approach to the opening of papers at both tiers with four multiple choice questions – higher tier assessment is obviously more challenging, but we still feel it is important that the earliest questions are designed to settle students allowing them to see familiarilty of style when they turn over that first page in the examination. We recognise that Higher students suffer from examination fear at least as much as Foundation students and we want to ease them into the papers at this tier too.

AQA

GCSE
MATHEMATICS
(8300/1H)
Paper 1 Higher tier

H

Specimen 2015   Morning   Time allowed: 1 hour 30 minutes

Materials

For this paper you must have:

- mathematical instruments

You may **not** use a calculator

Instructions

- Use black ink or black ball-point pen. Draw diagrams in pencil.
- Fill in the boxes at the bottom of this page.
- Answer **all** questions.
- You must answer the questions in the space provided. Do not write outside the box around each page or on blank pages.
- Do all rough work in this book. Cross through any work that you do not want to be marked.
- In all calculations, show clearly how you work out your answer.

Information

- The marks for questions are shown in brackets.
- The maximum mark for this paper is 80.
- You may ask for more answer paper, graph paper and tracing paper. These must be tagged securely to this answer booklet.

Please write clearly, in block capitals, to allow character computer recognition.

Centre number ☐☐☐☐☐   Candidate number ☐☐☐☐

Surname ☐☐☐☐☐☐☐☐☐☐☐☐☐☐☐☐☐☐☐☐☐☐☐☐☐

Forename(s) ☐☐☐☐☐☐☐☐☐☐☐☐☐☐☐☐☐☐☐☐☐☐☐☐☐

Candidate signature _____

Answer **all** questions in the spaces provided.

1 (a) Circle the smallest number.

[1 mark]

$$2.3 \qquad 2.\dot{3} \qquad 2.33 \qquad 2.03$$

1 (b) Circle the largest number.

[1 mark]

$$2.3 \qquad 2.\dot{3} \qquad 2.33 \qquad 2.03$$

2 Here is a sequence.

$$40 \qquad 35 \qquad 30 \qquad 25 \qquad 20$$

Circle the expression for the nth term of the sequence.

[1 mark]

$$5n + 35 \qquad 5n - 45 \qquad 45 - 5n \qquad n - 5$$

3   Which of these is **not** a square number?

Circle your answer.

[1 mark]

$4 \cdot 10^2$ $4 \cdot 10^6$ $9 \cdot 10^3$ $9 \cdot 10^4$

4   Work out $64.32 \div 0.12$

[2 marks]

Answer _____

Turn over for the next question

Q4 shows that students at Higher tier will need to be confident and competent in written calculations.

5 The scatter graph shows the number of driving lessons and the number of tests needed to pass by 10 people.
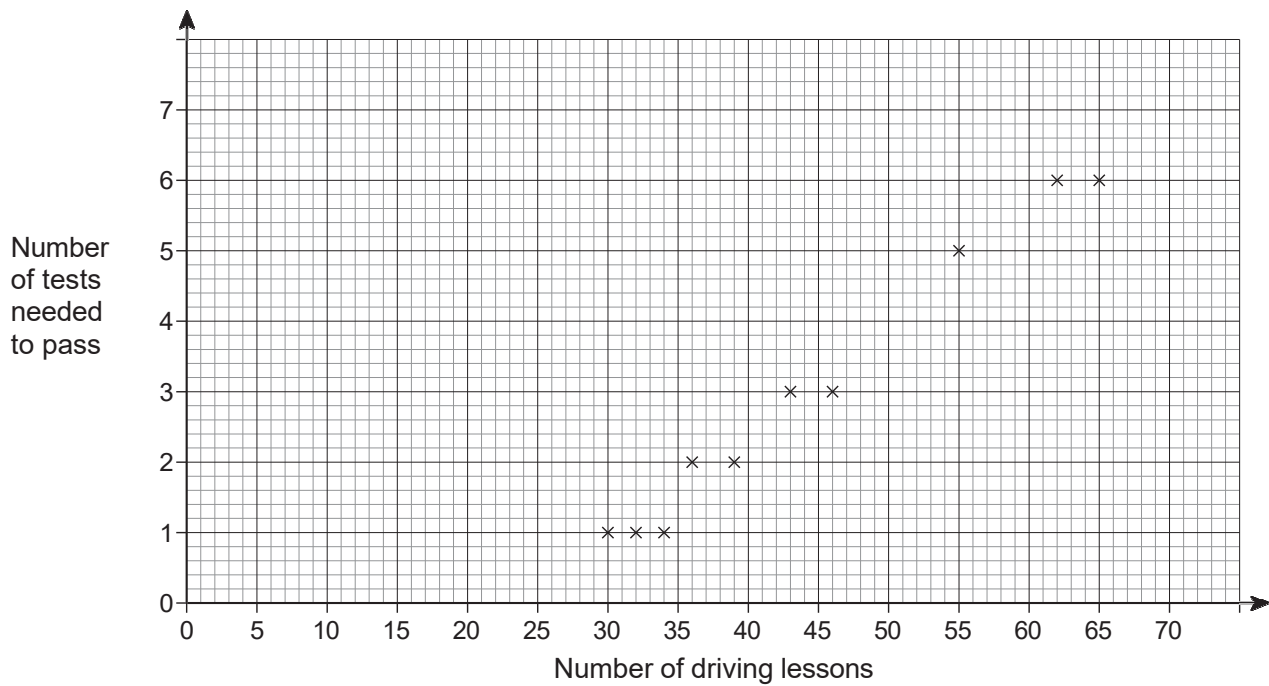
5 **(a)** Describe the correlation.

Circle your answer.

[1 mark]

strong positive   weak positive   weak negative   strong negative

5 **(b)** Use a line of best fit to estimate the number of tests needed to pass by a person who has 50 lessons.

[2 marks]

_____

_____

_____

Answer _____

5 **(c)** Meera says,

> "I can use the trend to predict the number of driving tests needed to pass for any number of driving lessons."

Comment on her statement.

[1 mark]

_____

_____

_____

6 Which of $\dfrac{2}{5}$ or $\dfrac{5}{8}$ is closer in value to $\dfrac{1}{2}$?

You **must** show your working.

[3 marks]

_____

_____

_____

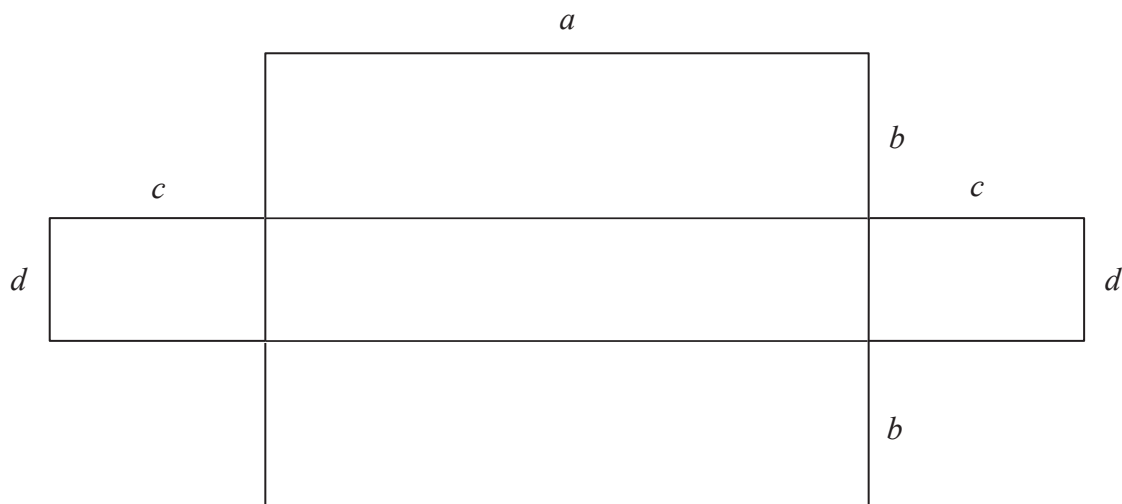_____

Answer _____

Turn over for the next question

Turn over ▶

7 A shape is made from rectangles.

**7 (a)** On the diagram below shade an area represented by the expression $ad + cd$

[1 mark]

a

b

c c

d d

b
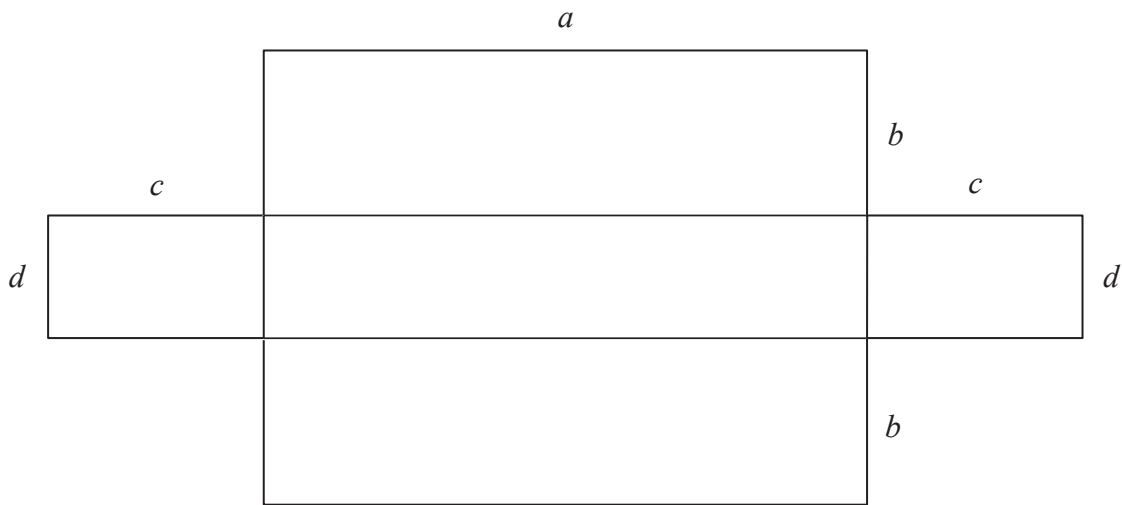
7 (b) On the diagram below shade the area represented by the expression $d(a + 2c)$

[1 mark]

a

b

c c

d d

b

ⓘ Q7 is common in part to Foundation and connects different areas of mathematics, which is a requirement of the new specification. We have generated the connection, but on other occasions students may need to make it themselves, for example, by setting up an equation to solve a problem in geometry.

7 **(c)** Write down an expression for the area of the whole shape.

<div align="right">

[1 mark]

</div>

a

b

c   *c*

d   *d*

b
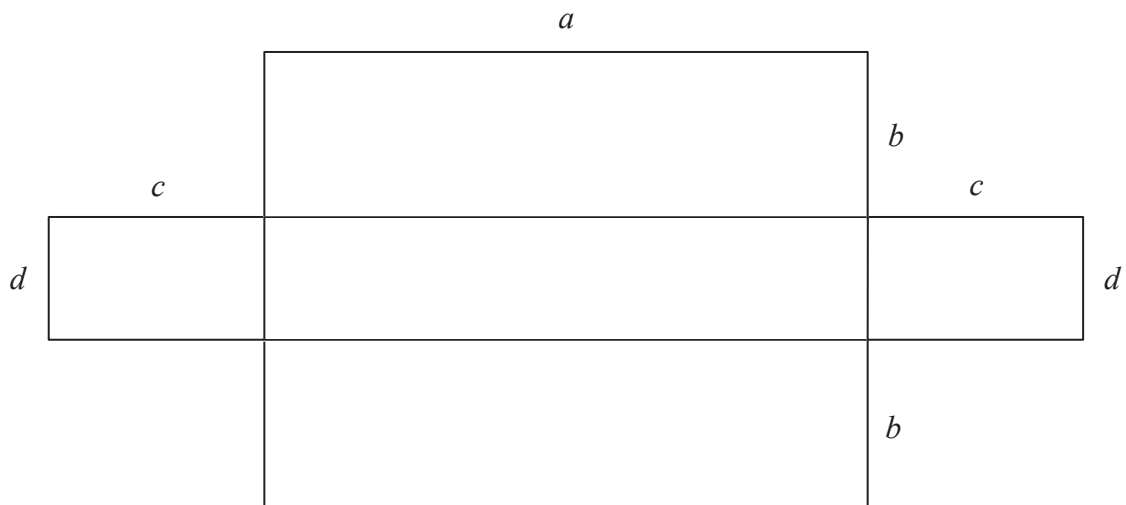
Answer _____

8 Circle the value of   cos 30°

<div align="right">

[1 mark]

</div>

$$\frac{1}{\sqrt{3}} \qquad \frac{1}{2} \qquad \frac{\sqrt{3}}{2} \qquad \frac{2}{\sqrt{3}}$$

Turn over for the next question

> ⓘ Q8 is a topic new to GCSE and is tested here in a multiple choice question, giving students every chance to remember the required information.

9 Alan, Ben and Carl ran a 1000 metre race.

The distance-time graph shows the race.
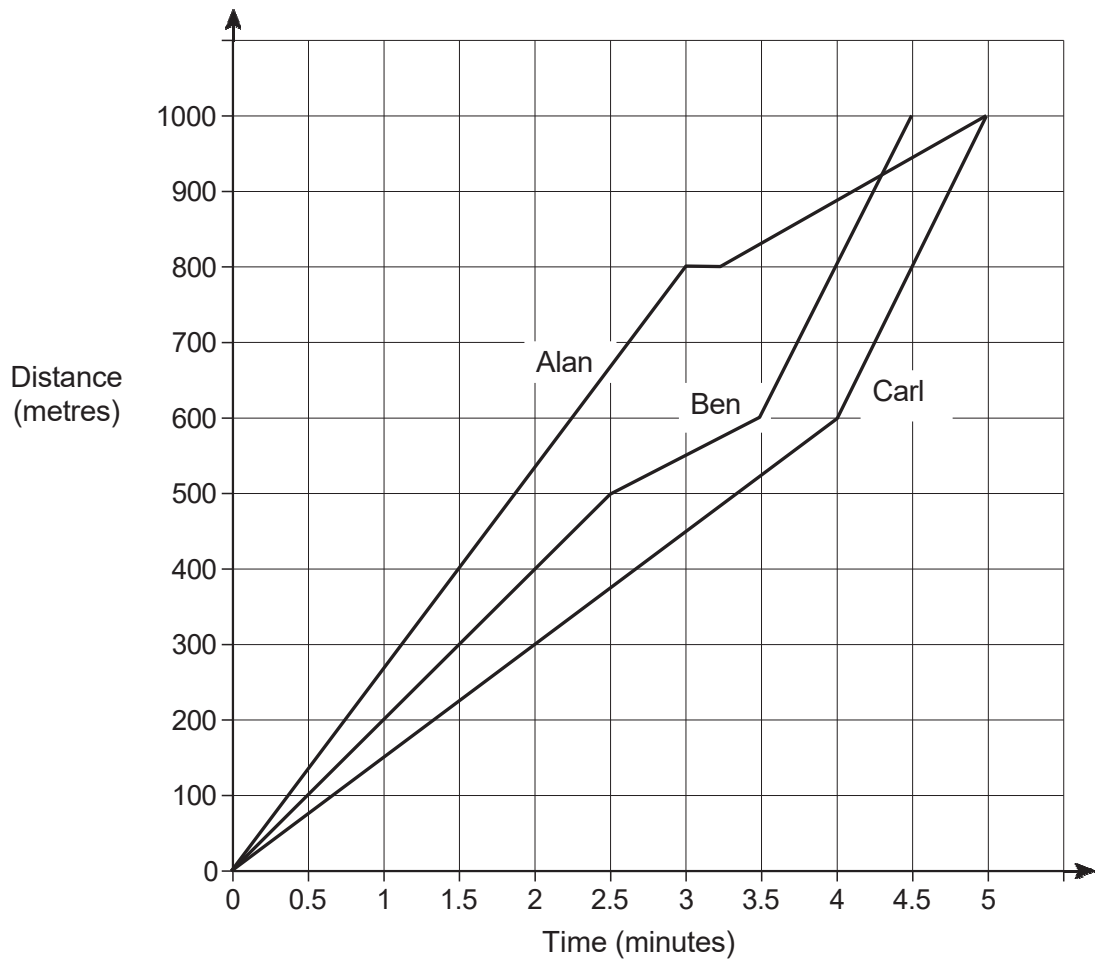
9 (a) Who won the race?

Give a reason for your answer.

[1 mark]

Answer _____

Reason

_____

_____

9 **(b)** Describe the race.

[4 marks]

_____

_____

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_____

Turn over for the next question

[4 marks]

10

$$2x + 3y = 15.5$$
$$x + y = 6$$

Work out the values of x and y.

[3 marks]

$x =$ _____

$y =$ _____

11   Five integers have

a mode of 6
a median of 8
a mean of 10

What is the **greatest** possible range of the five integers?

You **must** show your working.

[3 marks]

Answer _____

12 Write $2(7x + 4) - 4(x + 6) + 1$ in the form $a(bx + c)$

where a, b and c are integers and $a > 1$

[3 marks]

Answer _____

Turn over for the next question

13   Here is a map of France.

Scale: 1 cm represents 80 km

13 (a) Estimate the time it would take to drive from Paris to Marseille.

Assume

- the road is straight
- an average speed of 100 km/h

[4 marks]

Answer _____ hours

13 (b) Comment on how each assumption affects the accuracy of your estimate.

[2 marks]

Assumption 1 _____

Assumption 2 _____

Turn over ▶