



AQA Qualifications

---

# GCSE MATHEMATICS

Unit 1 43601F  
Mark Scheme

---

43601F  
November 2013

---

Final version 1.0

---

---

Mark schemes are prepared by the Lead Assessment Writer and considered, together with the relevant questions, by a panel of subject teachers. This mark scheme includes any amendments made at the standardisation events which all associates participate in and is the scheme which was used by them in this examination. The standardisation process ensures that the mark scheme covers the students' responses to questions and that every associate understands and applies it in the same correct way. As preparation for standardisation each associate analyses a number of students' scripts: alternative answers not already covered by the mark scheme are discussed and legislated for. If, after the standardisation process, associates encounter unusual answers which have not been raised they are required to refer these to the Lead Assessment Writer.

It must be stressed that a mark scheme is a working document, in many cases further developed and expanded on the basis of students' reactions to a particular paper. Assumptions about future mark schemes on the basis of one year's document should be avoided; whilst the guiding principles of assessment remain constant, details will change, depending on the content of a particular examination paper.

Further copies of this Mark Scheme are available from [aqa.org.uk](http://aqa.org.uk)

---

## Glossary for Mark Schemes

---

GCSE examinations are marked in such a way as to award positive achievement wherever possible. Thus, for GCSE Mathematics papers, marks are awarded under various categories.

|                        |  |
|------------------------|--|
| <b>M</b>               | Method marks are awarded for a correct method which could lead to a correct answer.  |
| <b>A</b>               | Accuracy marks are awarded when following on from a correct method. It is not necessary to always see the method. This can be implied. |
| <b>B</b>               | Marks awarded independent of method.   |
| <b>Q</b>               | Marks awarded for Quality of Written Communication   |
| <b>ft</b>              | Follow through marks. Marks awarded for correct working following a mistake in an earlier step.  |
| <b>SC</b>              | Special case. Marks awarded within the scheme for a common misinterpretation which has some mathematical worth.                        |
| <b>M dep</b>           | A method mark dependent on a previous method mark being awarded.   |
| <b>B dep</b>           | A mark that can only be awarded if a previous independent mark has been awarded.   |
| <b>oe</b>              | Or equivalent. Accept answers that are equivalent.<br>eg, accept 0.5 as well as $\frac{1}{2}$  |
| <b>[a, b]</b>          | Accept values between <i>a</i> and <i>b</i> inclusive.   |
| <b>3.14...</b>         | Allow answers which begin 3.14 eg 3.14, 3.142, 3.149.  |
| <b>Use of brackets</b> | It is not necessary to see the bracketed work to award the marks.  |

Examiners should consistently apply the following principles

### **Diagrams**

Diagrams that have working on them should be treated like normal responses. If a diagram has been written on but the correct response is within the answer space, the work within the answer space should be marked. Working on diagrams that contradicts work within the answer space is not to be considered as choice but as working, and is not, therefore, penalised.

### **Responses which appear to come from incorrect methods**

Whenever there is doubt as to whether a candidate has used an incorrect method to obtain an answer, as a general principle, the benefit of doubt must be given to the candidate. In cases where there is no doubt that the answer has come from incorrect working then the candidate should be penalised.

### **Questions which ask candidates to show working**

Instructions on marking will be given but usually marks are not awarded to candidates who show no working.

### **Questions which do not ask candidates to show working**

As a general principle, a correct response is awarded full marks.

### **Misread or miscopy**

Candidates often copy values from a question incorrectly. If the examiner thinks that the candidate has made a genuine misread, then only the accuracy marks (A or B marks), up to a maximum of 2 marks are penalised. The method marks can still be awarded.

### **Further work**

Once the correct answer has been seen, further working may be ignored unless it goes on to contradict the correct answer.

### **Choice**

When a choice of answers and/or methods is given, mark each attempt. If both methods are valid then M marks can be awarded but any incorrect answer or method would result in marks being lost.

### **Work not replaced**

Erased or crossed out work that is still legible should be marked.

### **Work replaced**

Erased or crossed out work that has been replaced is not awarded marks.

### **Premature approximation**

Rounding off too early can lead to inaccuracy in the final answer. This should be penalised by 1 mark unless instructed otherwise.

| Q           | Answer  | Mark | Comments   |
|-------------|---|------|--|
| <b>1(a)</b> | Three bars with heights 6, 5, 1 in the correct positions, with the correct widths and with diagonal stripes | B2   | B1 for two bars of correct height  |
| <b>1(b)</b> | Frank   | B1   | Accept any unambiguous indication eg F   |
| <b>1(c)</b> | Hamza   | B1   | Accept any unambiguous indication of Hamza, eg H   |
| <b>2(a)</b> | Writes the numbers in order of size:<br>20 21 23 23 24 (25 25 25 31)<br>or<br>31 25 25 25 24 (23 23 21 20)  | M1   | Allow one error/omission/extra   |
|             | 24  | A1   |  |
| <b>2(b)</b> | 25  | B1   |  |
| <b>3(a)</b> | Certain   | B1   |  |
| <b>3(b)</b> | Evens   | B1   |  |
| <b>4</b>    | 12 (goldfish) seen or implied   | B1   |  |
|             | 25 – (their 12 + 4) or 9  | M1   | oe<br>Condone 0 goldfish<br>Can be implied if Cats + Dogs = 9  |
|             | Their $9 \div 3$  | M1   | Accept embedded eg $3 \times 3 = 9$  |
|             | 3<br>6  | A1   | SC2 for 10, 5 (from 6 goldfish)<br>SC2 for 14, 7 (from 0 goldfish)<br>SC3 for 6, 3<br>SC3 for 7, 14 (from 0 goldfish)<br>SC3 for 5, 10 (from 6 goldfish) |

| Q    | Answer                             | Mark | Comments   |
|------|------------------------------------|------|--|
| 5(a) | 7 + 8 or 15                        | M1   |  |
|      | $\frac{15}{20}$                    | A1   | May be implied   |
|      | $\frac{3}{4}$                      | B1ft | ft their fraction simplified to lowest terms   |
| 5(b) | 8 + 1 or 9 seen or implied         | M1   |  |
|      | $\frac{9}{20}$                     | A1   | oe<br>SC1 $\frac{11}{20}$ oe   |
| 6(a) | (CB) CL CW<br>HB HL HW<br>PB PL PW | B3   | B2 for 5, 6 or 7 new combinations.<br>B1 for 2, 3 or 4 new combinations.<br>Accept any unambiguous representations of each sandwich or drink.<br>For B1 and B2 ignore any repeats. |
| 6(b) | $\frac{1}{9}$                      | B1ft | oe<br>ft their combinations if at least 1 HW   |

| Q    | Answer   | Mark | Comments  |
|------|--|------|---|
| 7(a) | 21 + 20 + 29 + 22 + 24 or 116  | M1   | Allow one error or omission   |
|      | their total ÷ 5  | M1   | Condone 21 + 20 + 29 + 22 + 24 ÷ 5  |
|      | 23.2   | A1   | May be implied  |
|      | 23   | B1ft | ft any decimal seen that is correctly rounded   |
| 7(b) | 9  | B1   |   |
| 7(c) | Agrees <b>and</b> Chris' mean is 23<br>or<br>Agrees <b>and</b> Chris' total is 116 and Tommy's total is 150<br>or<br>Correct <b>comparative</b> comment on means or total runs | Q1ft | Strand (iii)<br>eg Tommy scored 150 runs which is more than Chris<br>eg True as all Chris' scores are under 30<br>ft their mean or total from (a) |
| 7(d) | Agrees and Chris' range is 9<br>or<br>Correct <b>comparative</b> comment about the range   | Q1ft | Strand (iii)<br>eg Chris had a lower range so he was more consistent<br>ft their range from (b)   |

| Q    | Answer  | Mark | Comments  |
|------|---|------|---|
| 8(a) | $\frac{90}{360} (\times 100)$ or $360 \div 90 = 4$  | M1   | oe  |
|      | 25  | A1   |   |
| 8(b) | Correct comparison of England with one or more countries  | Q1   | Strand (ii)<br>eg Sales in England were the same as (total) sales in Northern Ireland, Scotland and Wales<br><br>Sales in England were twice sales in Scotland<br><br>Sales in England were three time sales in Wales |
| 8(c) | (Wales =) $60(^{\circ})$ or $\frac{1}{6}$<br>or $1(^{\circ}) = 500$ or $10(^{\circ}) = 5000$<br>or (NI =) 15 000<br>or (Scot =) 45 000<br>or (Eng =) 90 000   | B1   | Allow $\pm 2^{\circ}$<br>May be implied<br>Values may be on pie chart   |
|      | 360 $\div$ their 60 $\times$ 30 000<br>or<br>6 $\times$ 30 000<br>or<br>45 000 $\times$ 4<br>or<br>their 15 000 + their 45 000 +<br>their 90 000 (+ 30 000)<br>or<br>(15 000 + 30 000 + 45 000) ( $\times$ 2) | M1   | oe<br><br>NI + Scot + Eng with <b>two</b> of NI, Scot or Eng correct (condone Wales missing)<br><br>(Doubles) (NI + Wales + Scot) with NI <b>and</b> Scot correct   |
|      | 180 000   | A1   | Accept integer in range [174 194, 186 206] from angle [58, 62]<br><br>If $60^{\circ}$ used must have 180 000  |



| Q     | Answer   | Mark  | Comments   |
|-------|--|-------|--|
| 9     | At least one product attempted or one correct value (not 6)  | M1    | $1 \times 6$<br>$2 \times 10$ or 20<br>$3 \times 22$ or 66<br>$4 \times 9$ or 36<br>$5 \times 3$       |
|       | their 6 + their 20 + their 66 + their 36 + their 15  | M1dep | 5 products attempted and added   |
|       | 143  | A1    |  |
| 10(a) | 5 points plotted correctly   | B2    | Allow $\pm \frac{1}{2}$ square<br>B1 for 3 or 4 correct plots  |
| 10(b) | One straight line through both gates (90, 8.5-9.5) and (130, 13-14)                                    | B1    |  |
| 10(c) | 11.3   | B1 ft | ft their straight line of best fit<br>Allow [11.0, 11.6] if B0 awarded in (b)                          |
| 11(a) | $\frac{152}{200} \times 100$ or $\frac{48}{200} \times 100$<br>or $\frac{76}{100}$ or $\frac{24}{100}$ | M1    | 76 or 24 seen or implied   |
|       | 76 and 24 seen or implied  | A1    |  |
|       | Bar drawn in correct position and shaded (Shop at the bottom) with correct height, division and width  | B1ft  | $\pm \frac{1}{2}$ small square<br>ft their 76 or 24 but bar must total 100%<br>SC2 bar wrong way round |
| 11(b) | 1 : 4  | B2    | B1 for 20 : 80 oe<br>B1 $a : b$ with its correct simplest form<br>SC1 4 : 1                            |
| 12(a) | 13   | B1    |  |
| 12(b) | Cannot tell  | B1    |  |
| 12(c) | $20 < x \leq 30$   | B1    |  |

| Q  | Answer  | Mark  | Comments  |
|----|---|-------|---|
| 13 | <b>Alternative method 1</b>   |       |   |
|    | 100 – (25 + 35 + 30) or 10  | M1    | oe May be seen in table                                     |
|    | Valid attempt to find<br>1%, 100% or 5% or 50%<br>150 ÷ 25 or 6 (1%)<br>or<br>150 ÷ 0.25 or 150 × 4 or 600 (100%)<br>or<br>150 ÷ 5 or 30 (5%)<br>or<br>150 × 2 or 300 (50%) | M1    | oe  |
|    | their 10 × their 6<br>or<br>their 10 ÷ 100 × their 600<br>or<br>(their 10 ÷ 5) × their 30<br>or<br>(their 10 ÷ 50) × their 300  | M1dep | dep on previous M<br>oe<br>150 ÷ 2.5 or 150 × 0.4 scores M2 |
|    | 60  | A1    |   |
|    | <b>Alternative method 2</b>   |       |   |
|    | 150 ÷ 0.25 or 150 × 4 or 600 (100%)   | M1    | oe  |
|    | 0.35 × their 600 or 210<br><b>and</b><br>0.3 × their 600 or 180   | M1dep | oe  |
|    | their 600 – (150 + their 210 + their 180)   | M1dep | oe  |
|    | 60  | A1    |   |

| Q | Answer  | Mark  | Comments |
|---|---|-------|----------|
|   | <b>Alternative method 3</b>                             |       |          |
|   | 150 ÷ 25 or 6 (1%)                                      | M1    | oe       |
|   | 35 × their 6 or 210<br><b>and</b><br>3 × their 6 or 180 | M1dep | oe       |
|   | their 6 × 100 – (150 + their 210 + their 180)           | M1dep | oe       |
|   | 60  | A1    |          |



---

Copyright © 2013 AQA and its licensors. All rights reserved.

AQA retains the copyright on all its publications. However, registered schools/colleges for AQA are permitted to copy material from this booklet for their own internal use, with the following important exception: AQA cannot give permission to schools/colleges to photocopy any material that is acknowledged to a third party even for internal use within the centre.