AQA

ASSESSMENT and
QUALIFICATIONS
ALLIANCE

# General Certificate of Secondary Education

# Mathematics 4307
## *Specification B*

## Module 1  Tier F    43051F

# Mark Scheme
## *2008 examination - June series*

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

It must be stressed that a mark scheme is a working document, in many cases further developed and expanded on the basis of candidates' 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.

**The following abbreviations are used on the mark scheme:**

**M**          Method marks awarded for a correct method.

**A**          Accuracy marks awarded when following on from a correct method.
             It is not necessary always to see the method.  This can be implied.

**B**          Marks awarded independent of method.

**M dep**      A method mark which is dependent on a previous method mark being
             awarded.

**ft**         Follow through marks.  Marks awarded for correct working following a
             mistake in an earlier step.

**SC**         Special Case.  Marks awarded for a common misinterpretation which has
             some mathematical worth.

**oe**         Or equivalent.

**eeoo**       Each error or omission.

## MODULE 1    FOUNDATION TIER    43051F

**Note: Probability - Accept fraction, decimal or percentage.  Do not accept ratio.**

| 1(a) | 15 | B1 | |
|---|---|---|---|
| 1(b) | 50 – 20  or  3 × 10<br>(3 extra symbols) | M1 | |
| | 30 | A1 | |
| 1(c) | 2 whole symbols | B1 | |
| | 1 half symbol | B1 | |
| 1(d) | 45 + 15 + 50 + 20 + 25 | M1 | Allow one error<br>or  15.5 × 10 |
| | 155 | A1 | 130  SC1 |

| 2 | 5 × 4  or  20 | M1 | |
|---|---|---|---|
| | 20 – (2 + 3 + 9) | M1 dep | |
| | 6 | A1 | |

| 3(a) | $\frac{90}{360} \times 36$  or  $\frac{1}{4} \times 36$<br>or  90 ÷ 10 | M1 | oe |
|---|---|---|---|
| | 9 | A1 | |
| 3(b) | Correct method seen or implied by one correct angle $\pm 2º$ | M1 | eg  $\frac{480}{1800} \times 360$  or  480 ÷ 5 |
| | At least 3 correct angles seen or implied | A1 | $\pm 2º$  'labels' correct |
| | All 4 angles drawn correctly<br>96º,  64º,  120º,  80º | A1 | $\pm 2º$   Exactly 4 sectors |
| | Exactly 4 sectors drawn and all labelled in correct order of size | B1 | |

| 4(a) | 12 + 7 (= 19) | M1 | |
| | $\frac{19}{50}$  or  0.38  or  38% | A1 | SC1 $\frac{12}{50}$  or  0.24  or  24%  or  $\frac{6}{25}$ |
| 4(b) | Explanation that the original data is not known/we don't know if any of the 18 people spent exactly £8 | B1 | Accept: The data has been grouped |
| 4(c) | $10 < x \leq 20$ | B1 | |
| 4(d) | (18 × 5) + (13 × 15) + (12 × 25) + (7 × 35) or  90 + 195 + 300 + 245 or  830 | M1 | Attempt at ∑fx with at least 3 "correct" products using "midpoints" within or on the boundaries |
| | their 830 ÷ 50 | M1 dep | Can be implied by answer |
| | 16.60  (not 16.6) | A1 | 207.5 with no working implies M1M0A0 589.9 implies M1M0A0 16.6 with no working ⇒ M2 1660p ⇒ 3 |

| 5(a)(i) | Likely | B1 | |
| 5(a)(ii) | Impossible | B1 | |
| 5(a) (iii) | Certain | B1 | |
| 5(b) | 5 | B1 | |

| 6(a) | 19 | B1 | |
| 6(b) | 18 + 11 | M1 | At least one correct Addition can be implied from answer |
| | 29 | A1 | |
| 6(c) | 18 + 15 + 23 + 11 + 21  or  88 or  11 + 19 + 17 + 26  or  73 | M1 | Alternative: Differences used (18 − 11), (19 − 15), (23 − 17), (26 − 11) (or v.v.) or 7, 4, 6, 15 Allow ± 1 on one MR only |
| | 88 men **and** 73 women | A1 | 13 men and 19 women |
| | their 88 – their 73 (must be ≤ 88) must see both | M1 dep | 21 – their (19 – 13)  or  21 – their 6 Can be implied from answer |
| | 15 | A1 | |

| 7(a) | 7 | B1 | |
|---|---|---|---|
| 7(b) | 21 | B1 | |
| 7(c) | 18 | B1 | |
| 7(d)(i) | Stays the same | B1 | |
| 7(d)(ii) | Increases | B1 | |

| 8(a)(i) | 8 | B1 | |
|---|---|---|---|
| 8(a)(ii) | (0) (+) 8 (+) 12 (+) 3 | M1 | |
| | 23 | A1 | |
| 8(a) (iii) | (0) (+) 5 (+) 12 (+) 2 | M1 | |
| | 19 | A1 | |
| 8(b) | No box for zero or no TV watched<br><br>Gap between 0 and 1 or gap between 3 and 4 or there are gaps<br><br>4 - 6 and 6 - 8 overlap | B2 | Any two criticisms<br>B1 for each correct criticism<br>B2 for a completely correct alternative response section with at least 3 boxes - covering all possibilities with no overlap |