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Edexcel GCSE

# Mathematics 2381

# Paper 5381H/06

March 2008

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**Mark Scheme**

Edexcel GCSE

Mathematics 2381

**NOTES ON MARKING PRINCIPLES**

**1 Types of mark**

M marks: method marks
A marks: accuracy marks
B marks: unconditional accuracy marks (independent of M marks)

**2 Abbreviations**

cao – correct answer only
ft – follow through
isw – ignore subsequent working
SC: special case
oe – or equivalent (and appropriate)
dep – dependent
indep - independent

**3 No working**

If no working is shown then correct answers normally score full marks
If no working is shown then incorrect (even though nearly correct) answers score no marks.

**4 With working**

If there is a wrong answer indicated on the answer line always check the working in the body of the script (and on any diagrams), and award any marks appropriate from the mark scheme.
If it is clear from the working that the "correct" answer has been obtained from incorrect working, award 0 marks. Send the response to review, and discuss each of these situations with your Team Leader.
Any case of suspected misread loses A (and B) marks on that part, but can gain the M marks. Discuss each of these situations with your Team Leader.
If working is crossed out and still legible, then it should be given any appropriate marks, as long as it has not been replaced by alternative work.
If there is a choice of methods shown, then no marks should be awarded, unless the answer on the answer line makes clear the method that has been used.
If there is no answer on the answer line then check the working for an obvious answer.

**5 Follow through marks**

Follow through marks which involve a single stage calculation can be awarded without working since you can check the answer yourself, but if ambiguous do not award.
Follow through marks which involve more than one stage of calculation can only be awarded on sight of the relevant working, even if it appears obvious that there is only one way you could get the answer given.

**6 Ignoring subsequent work**

It is appropriate to ignore subsequent work when the additional work does not change the answer in a way that is inappropriate for the question: eg. incorrect cancelling of a fraction that would otherwise be correct

It is not appropriate to ignore subsequent work when the additional work essentially makes the answer incorrect eg algebra.

Transcription errors occur when candidates present a correct answer in working, and write it incorrectly on the answer line; mark the correct answer.

**7 Probability**

Probability answers must be given a fractions, percentages or decimals. If a candidate gives a decimal equivalent to a probability, this should be written to at least 2 decimal places (unless tenths).

Incorrect notation should lose the accuracy marks, but be awarded any implied method marks.

If a probability answer is given on the answer line using both incorrect and correct notation, award the marks.

If a probability fraction is given then cancelled incorrectly, ignore the incorrectly cancelled answer.

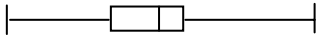
**8 Linear equations**

Full marks can be gained if the solution alone is given on the answer line, or otherwise unambiguously indicated in working (without contradiction elsewhere). Where the correct solution only is shown substituted, but not identified as the solution, the accuracy mark is lost but any method marks can be awarded.

**9 Parts of questions**

Unless allowed by the mark scheme, the marks allocated to one part of the question CANNOT be awarded in another.

| 5381H/6A | | | | |
|---|---|---|---|---|
| **Question** | **Working** | **Answer** | **Mark** | **Notes** |
| A1 | 1 − (0.4 + 0.1 + 0.2)<br>= 1 − 0.7 | 0.3 | 2 | M1 for 1 − (0.4 + 0.1 + 0.2) or 1 – 0.7<br>A1 for 0.3 oe<br>Watch for answer in table. |
| A2 | e.g. How many e-mails did you send last week?<br>0 – 5 □<br>6 – 10 □<br>more than 10 □ | question with response boxes | 2 | B1 for suitable question with time frame<br>B1 for at least 3 non-overlapping response boxes<br>Note all boxes need to be non-overlapping for this mark to be awarded. They also need to cover zero and/or "other" e.g. none and 10+ |
| A3 (a) | | Description | 1 | B1 for e.g. the older the car, the less its value, Negative correlation |
| (b) | | Line of best fit | 1 | B1 for line (1, 4200 to 4700) to (4, 1000 to 1600) |
| (c) | | Estimate at 3 yrs | 1 | B1 ft from their line ± ½ square<br>If no line drawn accept value in range 2200 – 2500 |
| (d) | | Estimate at £3500 | 1 | B1 ft from their line ± ½ square<br>If no line drawn accept value in range 1.8 to 2.1 inc |

| 5381H/6A | | | | |
|---|---|---|---|---|
| **Question** | **Working** | **Answer** | **Mark** | **Notes** |
| A4 (a) | Markings at 1.38, 1.54, 1.63, 1.68, 1.81  | box plot | 3 | B3 for fully correct box plot<br>(B2 for 3 correctly plotted values including box **and** tails)<br>(B1 for 2 correctly plotted values including box **or** tails or 5 correct values plotted and no box or tails)<br>Watch for 1.63 given as upper quartile (No mark |
| (b) | | 2 differences | 2 | B1 for comparison of a specific value<br>e.g. Tallest boy is taller than the tallest girl;<br>girls median greater than boys median<br>B1 for comparison of spread<br>e.g. the range of the boys heights is greater than the range of the girls heights;<br>interquartile range is the same<br>both boys and girls distribution have a negative skew |
| A5 | $\frac{43}{132} \times 40 = 13.03$ | 13 | 2 | M1 for $\frac{43}{132} \times 40$ oe or 13.03 seen<br>A1 cao<br>Watch for 13 obtained from incorrect working |

| 5381H/6B | | | | |
|---|---|---|---|---|
| **Question** | **Working** | **Answer** | **Mark** | **Notes** |
| B1 (a) | | 2 \| 3 5<br>3 \| 1 2 7 8<br>4 \| 0 6 8 9<br>5 \| 6 6<br><br>key 2\|1 = 21 | 3 | M1 for unordered stem and leaf diagram (condone 2 errors , 1 number misplaced counts as 1 error)<br>A1 for correctly ordered and fully correct diagram<br>B1 for key e.g. key 2\|1 = 21<br><br>Note: award marks if there are commas between leaves |
| (b) | | 39 | 2 | M1 for identifying two mid values<br>38 and 40 or 32 and 40 seen or 6½ seen<br>A1 cao<br>SC B1 for 36 seen on answer line |
| B2 | | 2 reasons | 2 | B1 eg only women asked or you need to ask men<br>B1 eg only leaving a cinema or needs to be different places |
| B3 | | 4/7<br>5/11, 6/11, 5/11 | 2 | B2 for all four probabilities correct<br>(B1for 1 probability correct) |
| B4 | | 140, (30), 100,<br>105, 20 | 2 | M1for Frequency = frequency density × column width, implied by one frequency correct or frequency density correctly marked on the vertical axis 1 cm = 1 unit<br>A1 for all frequencies correct<br>**For area method**<br>M1 for identifying 1 cm² as a frequency of 5<br>A1 for all frequencies correct |

| 5381H/6B | | | | |
|---|---|---|---|---|
| **Question** | **Working** | **Answer** | **Mark** | **Notes** |
| B5 | $(\frac{3}{9} \times \frac{2}{8}) + (\frac{2}{9} \times \frac{1}{8}) + (\frac{4}{9} \times \frac{3}{8})$<br>$= \frac{6+2+12}{72}$ | $\frac{20}{72}$ | 4 | B1 for $\frac{2}{8}$ or $\frac{1}{8}$ or $\frac{3}{8}$ seen as 2nd probability<br>M1 for $(\frac{3}{9} \times \frac{2}{8})$ or $(\frac{2}{9} \times \frac{1}{8})$ or $(\frac{4}{9} \times \frac{3}{8})$<br>M1 for $(\frac{3}{9} \times \frac{2}{8}) + (\frac{2}{9} \times \frac{1}{8}) + (\frac{4}{9} \times \frac{3}{8})$<br>A1 for $\frac{20}{72}$ o.e.<br>**Alternative scheme for replacement**<br>B0 for $\frac{3}{9}$ or $\frac{2}{9}$ or $\frac{4}{9}$ seen as 2nd probability<br>M1 for $(\frac{3}{9} \times \frac{3}{9})$ or $(\frac{2}{9} \times \frac{2}{9})$ or $(\frac{4}{9} \times \frac{4}{9})$<br>M1 for $(\frac{3}{9} \times \frac{3}{9}) + (\frac{2}{9} \times \frac{2}{9}) + (\frac{4}{9} \times \frac{4}{9})$<br>A0 for $\frac{29}{81}$<br>**Special cases**<br>S.C award B2 for $\frac{29}{81}$ or $\frac{20}{81}$ or $\frac{29}{72}$<br>SC award B1 for $\frac{2}{9}$ and $\frac{1}{9}$ and $\frac{3}{9}$<br>or $\frac{3}{8}$ and $\frac{2}{8}$ and $\frac{4}{8}$ seen as second probability if B2 not scored<br><br>Watch for candidates who misread the question and work with 10ths and 9ths They can score M2<br>Any other total for the number of yoghurts must be identified before ft |