EDEXCEL GCSE MATHEMATICS (MODULAR 2381)

# MATHS



## EXAM QUESTION PACK

UNIT 1 (PAPER 6) HIGHER TIER 5381H PAPERS

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| Centre No. | | | | | | Paper Reference | | | | | | | | Surname | Initial(s) |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Candidate No. | | | | | | 5 | 3 | 8 | 1 | H | / | 6 | A | Signature | |

Paper Reference(s)

**5381H/6A**

# Edexcel GCSE

## Mathematics (Modular) – 2381

Paper 6 – Section A (Calculator)

# Higher Tier

Unit 1 Test – Data Handling

Thursday 17 November 2011 – Morning

Time for Section A: 20 minutes

Examiner's use only

| | | |
|---|---|---|
| | | |

Team Leader's use only

| | | |
|---|---|---|
| | | |



| Section | Leave Blank |
|---|---|
| A | |
| B | |

**Materials required for examination**
Ruler graduated in centimetres and millimetres, protractor, compasses, pen, HB pencil, eraser, calculator.
Tracing paper may be used.

**Items included with question papers**
Nil

### Instructions to Candidates

In the boxes above, write your centre number, candidate number, your surname, initials and signature.
Check that you have the correct question paper.
Answer ALL the questions. Write your answers in the spaces provided in this question paper.
If you need more space to complete your answer to any question, use additional answer sheets.

### Information for Candidates

The marks for individual questions and the parts of questions are shown in round brackets: e.g. **(2)**.
This section has 4 questions. The total mark for this section is 15. The total mark for this paper is 30.
There are 8 pages in this question paper. Any blank pages are indicated.
**Calculators may be used for Section A only.**
If your calculator does not have a π button, take the value of π to be 3.142 unless the question instructs otherwise.

### Advice to Candidates

Show all stages in any calculations.
Work steadily through the paper. Do not spend too long on one question.
If you cannot answer a question, leave it and attempt the next one.
Return at the end to those you have left out.

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## SECTION A

**Answer ALL FOUR questions.**

**Write your answers in the spaces provided.**

**You must write down all stages in your working.**

**You may use a calculator in this section.**

**1.** A basketball team played 8 games.

The mean score for those 8 games is 31.5 points.

The basketball team played one more game.

The mean score of all 9 games is now 32

How many points did the team score in the 9th game?

…….. points

**(Total 3 marks)**

**Q1**



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**2.** Jonty made 30 flights in his plane last year.

The table gives some information about the length of time $t$, in minutes, of each flight.

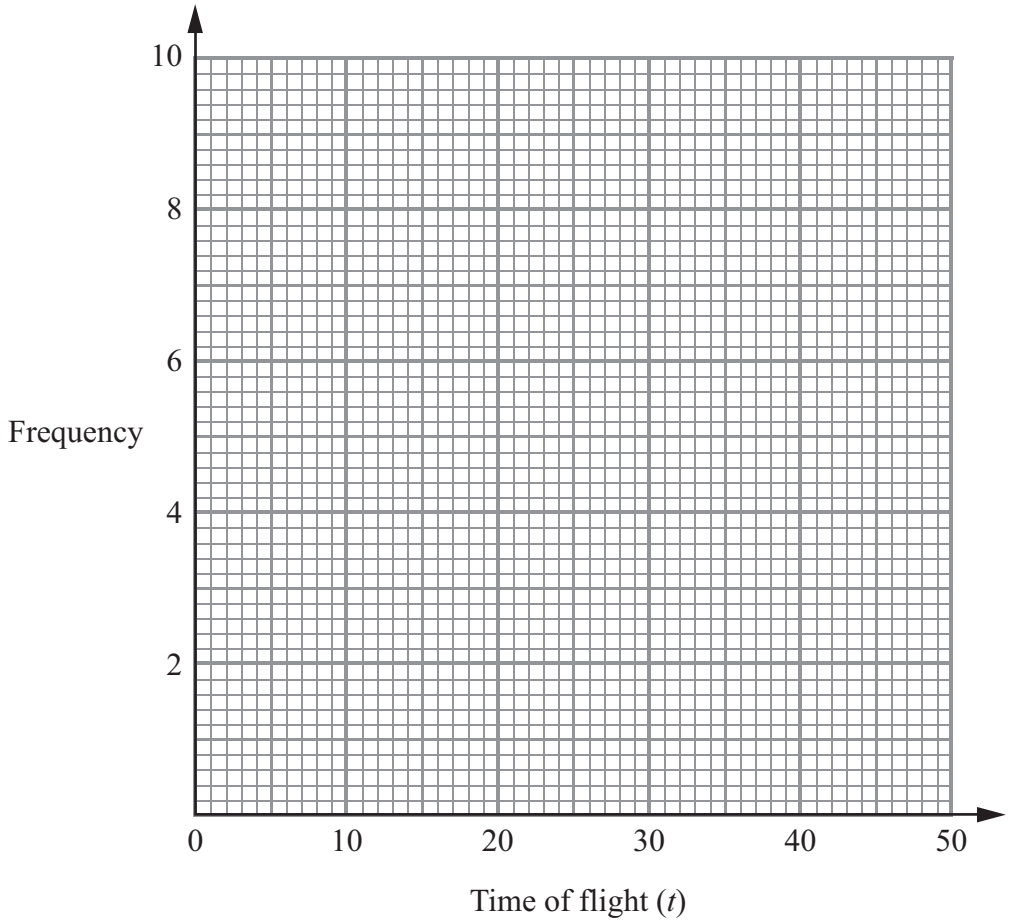
| Time of flight ($t$) | Frequency |
|---|---|
| $0 < t \leqslant 10$ | 9 |
| $10 < t \leqslant 20$ | 8 |
| $20 < t \leqslant 30$ | 3 |
| $30 < t \leqslant 40$ | 6 |
| $40 < t \leqslant 50$ | 4 |

(a) Write down the class interval that contains the median.

.....

**(1)**

(b) On the grid below, draw a frequency polygon to show this information.




**(2)**

**Q2**

**(Total 3 marks)**



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**3.** The cumulative frequency table gives information about the ages of the teachers at West Ham School.

| Age ($A$) in years | Cumulative frequency |
|---|---|
| $20 < A \leqslant 30$ | 5 |
| $20 < A \leqslant 40$ | 25 |
| $20 < A \leqslant 50$ | 40 |
| $20 < A \leqslant 60$ | 55 |
| $20 < A \leqslant 70$ | 60 |

(a) On the grid opposite, draw a cumulative frequency graph for this information.

**(2)**

(b) Use your cumulative frequency graph to find an estimate for

(i) the median age of the teachers,

..... years

(ii) the interquartile range of the age of these teachers.

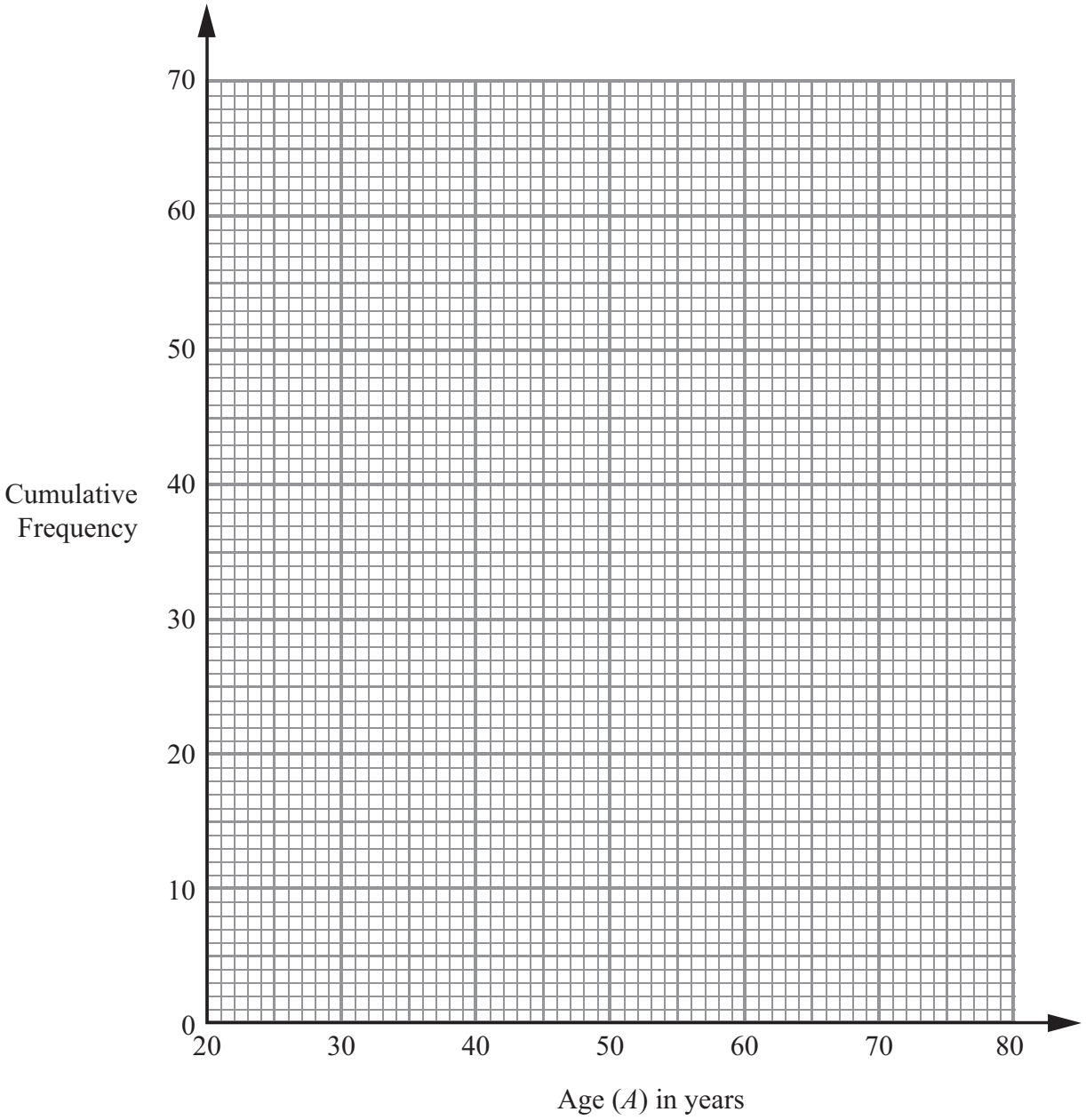
..... years

**(4)**



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**Q3**

**(Total 6 marks)**



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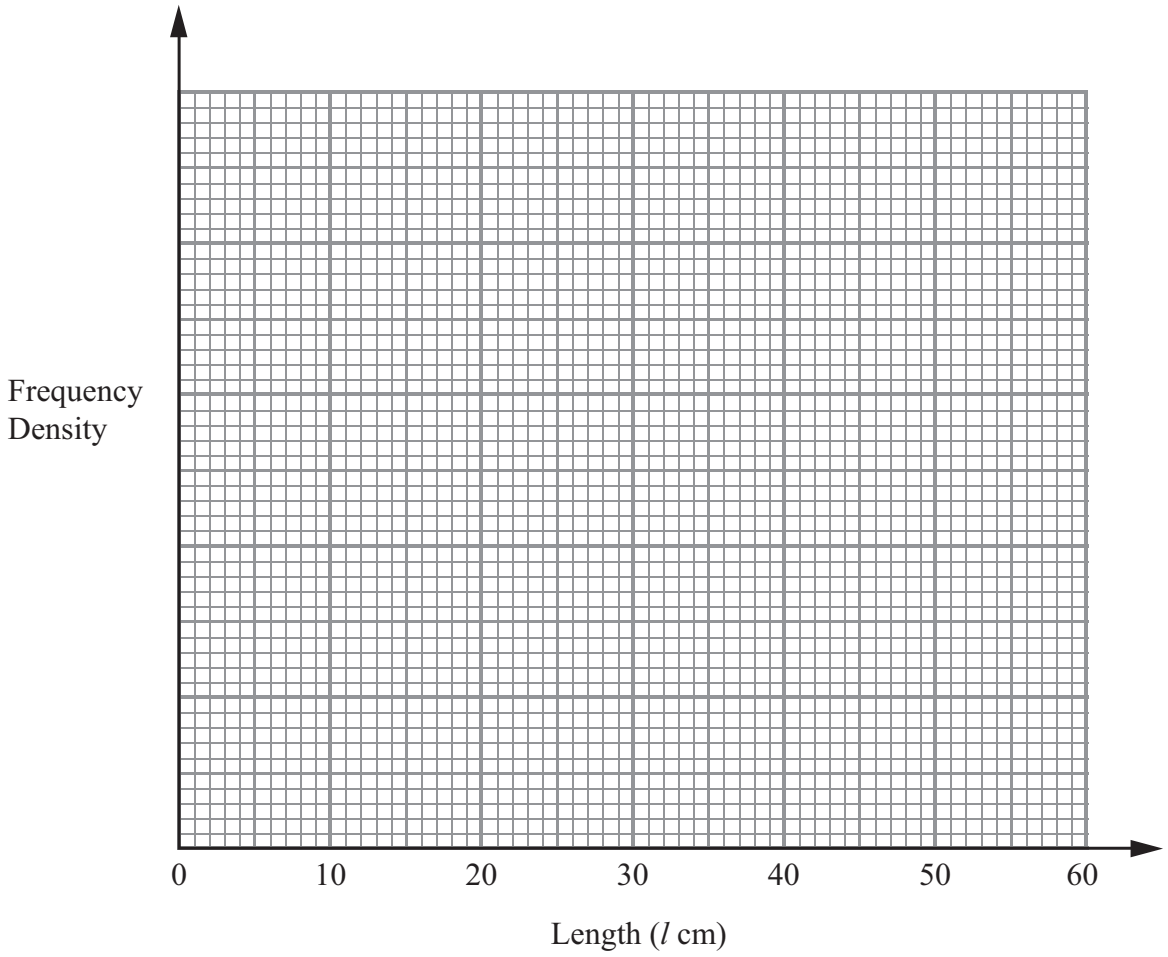
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**4.** Jim likes to go fishing.

The table shows some information about the lengths of the fish he caught last week.

| Length ($l$ cm) | Frequency |
|---|---|
| $0 < l \leqslant 10$ | 4 |
| $10 < l \leqslant 15$ | 12 |
| $15 < l \leqslant 20$ | 20 |
| $20 < l \leqslant 30$ | 16 |
| $30 < l \leqslant 50$ | 5 |

Use the information in the table to draw a histogram.




**Q4**

**(Total 3 marks)**

**TOTAL FOR SECTION A: 15 MARKS**

**END**



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| Centre No. | | | | | | Paper Reference | | | | | | | | Surname | Initial(s) |
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Paper Reference(s)

**5381H/6B**

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Team Leader's use only

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# Edexcel GCSE

## Mathematics (Modular) – 2381

Paper 6 – Section B (Non-Calculator)

# Higher Tier



Unit 1 Test – Data Handling

Thursday 17 November 2011 – Morning

Time for Section B: 20 minutes

**Materials required for examination**
Ruler graduated in centimetres and millimetres, protractor, compasses, pen, HB pencil, eraser.
Tracing paper may be used.

**Items included with question papers**
Nil

### Instructions to Candidates

In the boxes above, write your centre number, candidate number, your surname, initials and signature.
Check that you have the correct question paper.
Answer ALL the questions. Write your answers in the spaces provided in this question paper.
If you need more space to complete your answer to any question, use additional answer sheets.

### Information for Candidates

The marks for individual questions and the parts of questions are shown in round brackets: e.g. **(2)**.
This section has 5 questions. The total mark for this section is 15. The total mark for this paper is 30.
There are 8 pages in this question paper. Any blank pages are indicated.
**Calculators may be used for Section A only.**

### Advice to Candidates

Show all stages in any calculations.
Work steadily through the paper. Do not spend too long on one question.
If you cannot answer a question, leave it and attempt the next one.
Return at the end to those you have left out.

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## SECTION B

**Answer ALL FIVE questions.**

**Write your answers in the spaces provided.**

**You must write down all stages in your working.**

**You must NOT use a calculator in this section.**

**1.** Nathalie wants to carry out a survey to find out how much money her friends spend on buying music.

She uses this question in a questionnaire.

"How much money do you spend on buying music?"

A little? ☐ Not much? ☐ Quite a lot? ☐

(a) Write down **two** things wrong with this question.

1 .....

.....

2 .....

.....

**(2)**

(b) Write a better question for Nathalie to use on her questionnaire.

**(2)** **Q1**

**(Total 4 marks)**



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**2.** Josie rolls a biased dice.

The probability that the dice will land on 1 or 2 or 3 or 4 or 5 is given in the table.

| **Score** | **1** | **2** | **3** | **4** | **5** | **6** |
|---|---|---|---|---|---|---|
| **Probability** | 0.15 | 0.25 | 0.20 | 0.10 | 0.15 | |

Work out the probability that the dice will land on 6

.....

**Q2**

**(Total 2 marks)**

**3.** The probability of rain as Peter is going to work is 0.05

Peter goes to work on 180 days in the year.

Work out an estimate for the number of days in the year it rains as Peter is going to work.

..... days

**Q3**

**(Total 2 marks)**



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**4.** The table shows the number of digital radios sold by a shop during 2009 and 2010
The table also shows some of the 4-point moving averages.

| Time period | Number sold | Moving average |
|---|---|---|
| Jan '09 – Mar '09 | 8 | |
| Apr '09 – Jun '09 | 4 | |
| Jul '09 – Sep '09 | 6 | 6.25 |
| Oct '09 – Dec '09 | 7 | 5.5 |
| Jan '10 – Mar '10 | 5 | 5.25 |
| Apr '10 – Jun '10 | 3 | 4.75 |
| Jul '10 – Sep '10 | 4 | ..... |
| Oct '10 – Dec '10 | 6 | |

(a) Work out the missing 4-point moving average.

.....

**(2)**

(b) What do the moving averages show about the trend?

.....

**(1)**

**Q4**

**(Total 3 marks)**



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**5.** Mandeep and Preet have 10 bottles of juice in their fridge.

They have

5 bottles of orange juice
3 bottles of cranberry juice
2 bottles of mango juice

They each take a bottle, at random, from the fridge.

What is the probability that they each take a bottle of the same type of juice?

**Q5**

.....

**(Total 4 marks)**

**TOTAL FOR SECTION B: 15 MARKS**
**TOTAL FOR PAPER: 30 MARKS**

**END**



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# Mark Scheme (Results)

## November 2011

## GCSE Mathematics (2381)
## Paper 5381H_6A (Calculator)

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http://www.edexcel.com/Aboutus/contact-us/

November 2011

Publications Code UG029732

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

**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 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 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.
If there is no answer on the answer line then check the working for an obvious answer.
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 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.

**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: e.g. incorrect canceling 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 e.g. 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.

**10 Money notation**

Accepted with and without the “p” at the end.

**11 Range of answers**

Unless otherwise stated, when any answer is given as a range (e.g 3.5 – 4.2) then this is inclusive of the end points (e.g 3.5, 4.2) and includes all numbers within the range (e.g 4, 4.1).

| 5381H_6A | | | | | |
|---|---|---|---|---|---|
| **Question** | | **Working** | **Answer** | **Mark** | **Notes** |
| 1 | | 31.5 × 8 = 252<br>32 × 9 = 288<br>288 – “252” = | 36 | 3 | M1 for 31.5 × 8 or 252 seen<br>or 32 × 9 or 288 seen<br>M1 (dep) for ‘288’ – ‘252’<br>A1 cao |
| 2 | (a) | | $10 < t \leq 20$ | 1 | B1 for $10 < t \leq 20$ (accept 10 to 20 etc) |
| | (b) | | Points (5, 9), (15, 8), (25, 3), (35, 6) and (45, 4) joined with line segments | 2 | B2 for complete polygon (ignore histograms and any lines below a time of 5 or above a time of 45, but award B1 only if there is a line joining the first to the last point)<br>[B1 for:<br>only one plotting error of the points and points joined with line segments<br>or<br>plotting all points correctly but not correctly joining with line segments (In this case ignore a line joining first to last point)<br>or<br>incorrect but consistent plotting of all points within each interval (not midpoints) and correctly joining the points with line segments. (In this case ignore a line joining first to last point)<br><br>Plotting tolerance ± half square<br>Points to be joined by straight lines but not curves. Accept ruled or hand-drawn lines |

| 5381H_6A | | | | | |
|---|---|---|---|---|---|
| **Question** | | **Working** | **Answer** | **Mark** | **Notes** |
| 3 | (a) | | Cf graph | 2 | B2 for a fully correct cf graph (accept curve or line segments)<br>[B1 for :<br>4 or 5 correctly plotted points<br>or<br>all points plotted consistently, within the interval, and a cf graph drawn through the points other than at the end of each interval]<br><br>Plotting tolerance ± half square<br><br>Part (b) can be followed through from any cf graph drawn in part (a) |
| | (b)(i) | | 41.5 – 44.5 (inc.) | 4 | B2 for an answer in the range 41.5 – 44.5 (inc.) if M0 not awarded<br>OR<br>M1 for a line drawn across at cf = 30<br>A1for answer in range 41.5 – 44.5 inc or ft from their cf graph |
| | (ii) | | 16 – 20 | | B2 for an answer in the range 16 – 20<br>OR<br>M1 for a correct complete method to identify upper (52 – 54) and lower (34 – 36) quartiles<br>A1 for an interquartile range in range 16 – 20 or ft from their cf graph |

| 5381H_6A | | | | | |
|---|---|---|---|---|---|
| **Question** | | **Working** | **Answer** | **Mark** | **Notes** |
| 4 | | 4 ÷ 10 = 0.4<br>12 ÷ 5 = 2.4<br>20 ÷ 5 = 4<br>16 ÷ 10 = 1.6<br>5 ÷ 20 = 0.25 | Bars at, for example:<br>0.8cm, 4.8cm, 8cm, 3.2 cm and 0.5 cm in height oe with fd axis labelled correctly | 3 | M1 for 4 ÷ 10 (= 0.4) or 12 ÷ 5 (= 2.4) or 20 ÷ 5 (= 4) or 16 ÷ 10 (= 1.6) or 5 ÷ 20 (= 0.25)<br>A1 for bars of consistent areas for **all** given frequencies<br>B1 for fd axis labelled correctly and consistently<br><br>OR<br><br>M1 for 3 or more bars of consistent areas drawn<br>A1 for bars of consistent areas for **all** given frequencies<br>B1 for fd axis labelled correctly and consistently |

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# Mark Scheme (Results)

## November 2011

## GCSE Mathematics (5381H)
## Paper 6B (Non-Calculator)

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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**

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**10 Money notation**

Accepted with and without the “p” at the end.

**11 Range of answers**

Unless otherwise stated, when any answer is given as a range (e.g 3.5 – 4.2) then this is inclusive of the end points (e.g 3.5, 4.2) and includes all numbers within the range (e.g 4, 4.1).

| 5381H_6B | | | | | |
|---|---|---|---|---|---|
| **Question** | | **Working** | **Answer** | **Mark** | **Notes** |
| 1 | (a) | | No time scale specified<br>Response boxes too vague | 2 | B2 for 2 of the following traits:<br>• No time frame<br>• Response boxes too vague (not specific)<br>• No zero response box, oe<br>[B1 for just one of the above traits] |
| | (b) | | How much money do you spend on music each week/month<br>None<br>£1 to £5<br>£6 to £10<br>More than £10 | 2 | B1 for an appropriate question including:<br>a time frame. Eg, "how much money do you spend on music each week/month?" This could be seen only in the labelling of the response boxes, for example "£0 - £2 per week"<br>AND<br>B1 for at least 3 non-overlapping response boxes (need not be exhaustive)<br>OR<br>for at least 3 exhaustive response boxes which may be overlapping. Do not accept for example exhaustive response boxes such as " less than £5, more than £5, less than £10"<br><br>[Do not allow inequalities in response boxes] |
| 2 | | 1 – (0.15+0.25+0.2+0.1+ 0.15) | 0.15<br>or 15%<br>or $\frac{15}{100}$ | 2 | M1 for 1 – (0.15+0.25+0.2+0.1+ 0.15) oe<br>A1 for 0.15 or 15% or $\frac{15}{100}$<br>[SC: B1 for an answer of 15 if M0 scored] |
| 3 | | 0.05 × 180 | 9 | 2 | M1 for 0.05 × 180<br>A1 for 9 |

| 5381H_6B | | | | | |
|---|---|---|---|---|---|
| **Question** | | **Working** | **Answer** | **Mark** | **Notes** |
| 4 | (a) | (5 + 3+ 4 + 6) ÷ 4 | 4.5 | 2 | M1 (5 + 3+ 4 + 6) ÷ 4 or 18 ÷ 4<br>A1 for 4.5 seen either in table or on answer line |
| | (b) | | Decreasing | 1 | B1 for statement e.g. for decrease or downwards trend or ‘number of sales went down’ or ‘it goes down’ oe<br><br>[Note: the statement needs to refer to the trend of the moving averages rather than any trend or seasonality of the raw data] |

| 5381H_6B | | | | | |
|---|---|---|---|---|---|
| **Question** | | **Working** | **Answer** | **Mark** | **Notes** |
| 5 | | $(\frac{5}{10} \times \frac{4}{9}) + (\frac{3}{10} \times \frac{2}{9}) + (\frac{2}{10} \times \frac{1}{9})$<br>$= \frac{20+6+2}{90} = \frac{28}{90}$ | $\frac{14}{45}$ | 4 | B1 for $\frac{4}{9}$ or $\frac{2}{9}$ or $\frac{1}{9}$ seen as 2nd probability<br>M1 for $(\frac{5}{10} \times \frac{4}{9})$ or $(\frac{3}{10} \times \frac{2}{9})$ or $(\frac{2}{10} \times \frac{1}{9})$<br>M1 for $(\frac{5}{10} \times \frac{4}{9}) + (\frac{3}{10} \times \frac{2}{9}) + (\frac{2}{10} \times \frac{1}{9})$<br>A1 for $\frac{28}{90}$ o.e.<br>Alternative scheme for replacement<br>B0 for $\frac{5}{10}$ or $\frac{3}{10}$ or $\frac{2}{10}$ seen as 2nd probability<br>M1 for $(\frac{5}{10} \times \frac{5}{10})$ or $(\frac{3}{10} \times \frac{3}{10})$ or $(\frac{2}{10} \times \frac{2}{10})$<br>M1 for $(\frac{5}{10} \times \frac{5}{10}) + (\frac{3}{10} \times \frac{3}{10}) + (\frac{2}{10} \times \frac{2}{10})$<br>A0 for $\frac{38}{100}$<br>Special cases<br>SC award B2 for $\frac{38}{100}$ or $\frac{28}{100}$ or $\frac{38}{90}$ o.e.<br>SC award B1 for $\frac{4}{10}$ and $\frac{2}{10}$ and $\frac{1}{10}$ o.e.<br>or $\frac{5}{9}$ and $\frac{3}{9}$ and $\frac{2}{9}$ seen as second probability if B2 not scored |

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| Centre No. | | | | | | Paper Reference | | | | | | | | Surname | Initial(s) |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Candidate No. | | | | | | 5 | 3 | 8 | 1 | H | / | 6 | A | Signature | |

Paper Reference(s)

**5381H/6A**

# Edexcel GCSE

## Mathematics (Modular) – 2381

Paper 6 – Section A (Calculator)

# Higher Tier

Unit 1 Test – Data Handling

Monday 13 June 2011 – Morning

Time for Section A: 20 minutes

Examiner's use only

| | | |
|---|---|---|
| | | |

Team Leader's use only

| | | |
|---|---|---|
| | | |



| Section | Leave Blank |
|---|---|
| A | |
| B | |

**Materials required for examination**
Ruler graduated in centimetres and millimetres, protractor, compasses, pen, HB pencil, eraser, calculator.
Tracing paper may be used.

**Items included with question papers**
Nil

### Instructions to Candidates

In the boxes above, write your centre number, candidate number, your surname, initials and signature.
Check that you have the correct question paper.
Answer ALL the questions. Write your answers in the spaces provided in this question paper.
If you need more space to complete your answer to any question, use additional answer sheets.

### Information for Candidates

The marks for individual questions and the parts of questions are shown in round brackets: e.g. **(2)**.
This section has 4 questions. The total mark for this section is 15. The total mark for this paper is 30.
There are 8 pages in this question paper. Any blank pages are indicated.
**Calculators may be used for Section A only.**
If your calculator does not have a π button, take the value of π to be 3.142 unless the question instructs otherwise.

### Advice to Candidates

Show all stages in any calculations.
Work steadily through the paper. Do not spend too long on one question.
If you cannot answer a question, leave it and attempt the next one.
Return at the end to those you have left out.

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## SECTION A

**Answer ALL FOUR questions.**

**Write your answers in the spaces provided.**

**You must write down all stages in your working.**

**You may use a calculator in this section.**

**1.** Lupin seeds can grow into pink or yellow or red or blue flowers.

The table shows the probability that a seed will grow into a pink or a yellow or a red flower.

| Colour | pink | yellow | red | blue |
|---|---|---|---|---|
| Probability | 0.30 | 0.25 | 0.30 | |

A seed is chosen at random from a packet of mixed lupin seeds.

(a) Work out the probability that the seed will grow into a blue flower.

.....

**(2)**

200 mixed lupin seeds are planted in a garden.

(b) Work out an estimate for the number of these seeds that will grow into pink flowers.

.....

**(2)** **Q1**

**(Total 4 marks)**



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Leave blank

**2.** A group of 30 students walked around a park for a charity event.
The table shows some information about the times they took.

| Time taken ($t$ minutes) | Frequency |
|---|---|
| $10 \leqslant t < 20$ | 3 |
| $20 \leqslant t < 30$ | 10 |
| $30 \leqslant t < 40$ | 13 |
| $40 \leqslant t < 50$ | 4 |

(a) Work out an estimate for the mean time taken.

..... minutes
**(4)**

A student came 25th in the charity event.

(b) What is the shortest time he could have taken?

..... minutes
**(1)**

**Q2**

**(Total 5 marks)**



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**3.** The table shows the numbers, in thousands, of different types of homes in the UK in 2001.

| Type of homes | Detached house | Semi-detached house | Terraced house | Flat | Total |
|---|---|---|---|---|---|
| Number (thousands) | 5600 | 8150 | 7380 | 4330 | 25460 |

*(Source: 2001 Census.)*

Mary takes a sample of 500 homes stratified by type.

Calculate the number of terraced houses that she should have in her sample.

.....

**Q3**

**(Total 2 marks)**



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**4.** Amy has three pencil cases.

In her Hearts pencil case, she has seven black pens and three red pens.
In her Furry pencil case, she has six black pens and four green pens.
In her New Moon pencil case, she has five black pens and five blue pens.

Amy takes, at random, one pen out of each pencil case.

Work out the probability that she takes exactly one black pen.

.....

**Q4**

**(Total 4 marks)**

**TOTAL FOR SECTON A: 15 MARKS**

**END**



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| Centre No. | | | | | | Paper Reference | | | | | | | | Surname | Initial(s) |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Candidate No. | | | | | | 5 | 3 | 8 | 1 | H | / | 6 | B | Signature | |

Paper Reference(s)

**5381H/6B**

Examiner's use only

Team Leader's use only

# Edexcel GCSE

## Mathematics (Modular) – 2381

Paper 6 – Section B (Non-Calculator)

# Higher Tier



Unit 1 Test – Data Handling

Monday 13 June 2011 – Morning

Time for Section B: 20 minutes

**Materials required for examination**
Ruler graduated in centimetres and millimetres, protractor, compasses, pen, HB pencil, eraser.
Tracing paper may be used.

**Items included with question papers**
Nil

### Instructions to Candidates

In the boxes above, write your centre number, candidate number, your surname, initials and signature.
Check that you have the correct question paper.
Answer ALL the questions. Write your answers in the spaces provided in this question paper.
If you need more space to complete your answer to any question, use additional answer sheets.

### Information for Candidates

The marks for individual questions and the parts of questions are shown in round brackets: e.g. **(2)**.
This section has 4 questions. The total mark for this section is 15. The total mark for this paper is 30.
There are 8 pages in this question paper. Any blank pages are indicated.
**Calculators may be used for Section A only.**

### Advice to Candidates

Show all stages in any calculations.
Work steadily through the paper. Do not spend too long on one question.
If you cannot answer a question, leave it and attempt the next one.
Return at the end to those you have left out.

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## SECTION B

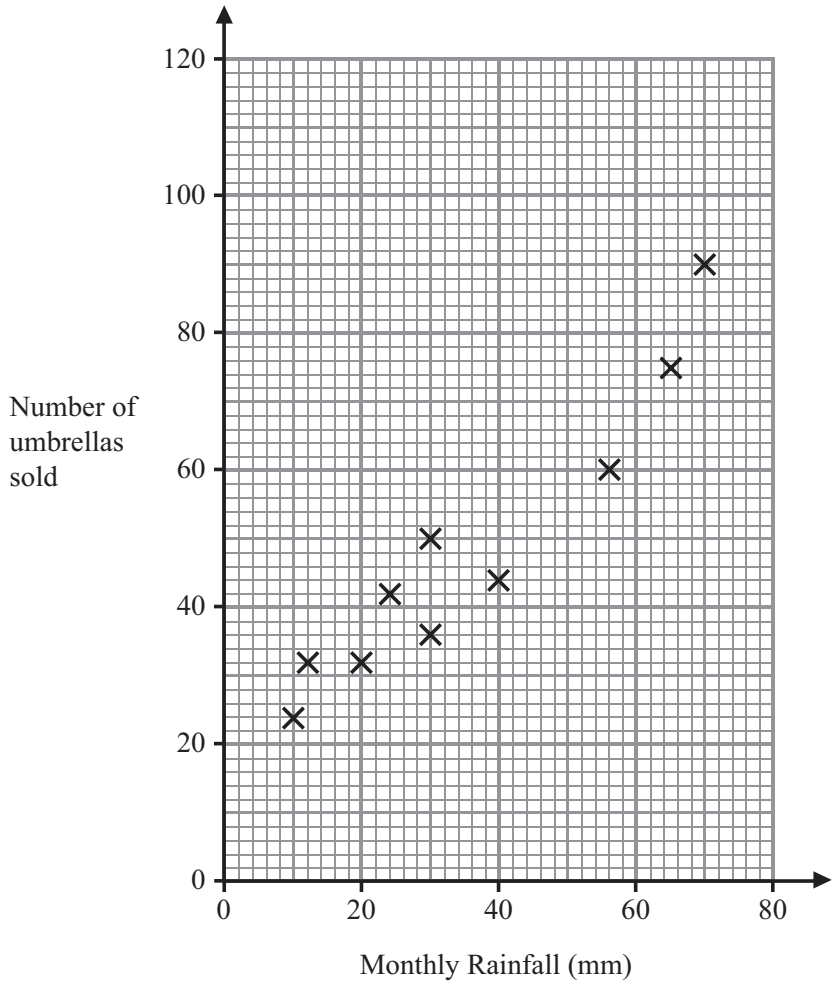
**Answer ALL FOUR questions.**

**Write your answers in the spaces provided.**

**You must write down all stages in your working.**

**You must NOT use a calculator in this section.**

**1.** The scatter graph shows information about the monthly rainfall (mm) and the numbers of umbrellas sold in a shop for ten months last year.




The table shows the monthly rainfall and the numbers of umbrellas sold, for two more months.

| | | |
|---|---|---|
| Monthly rainfall (mm) | 40 | 50 |
| Number of umbrellas sold | 60 | 75 |

(a) On the scatter graph, plot the information from the table.

**(1)**



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Leave blank

(b) Describe the relationship between the monthly rainfall and the number of umbrellas sold.

.....

.....

**(1)**

(c) Draw a line of best fit on the scatter graph.

**(1)**

In another month, the rainfall was 60 mm.

(d) Use your line of best fit to estimate the number of umbrellas sold.

.....

**(1)**

**(Total 4 marks)**

**Q1**



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**2.** Customised Cars sells cars.
The table shows some information about the number of cars sold each month from Jan to Jun last year.

| 2010 | Jan | Feb | Mar | Apr | May | Jun |
|---|---|---|---|---|---|---|
| **Number of cars sold** | 15 | 14 | 13 | 18 | 14 | 16 |
| **3-point moving average** | | 14 | 15 | 15 | | |

(a) Work out the missing 3-point moving average.
Write your answer in the table.

**(2)**

In January 2011 Customised Cars sold no cars.
The moving average for Jan, Feb and Mar 2011 was 14

| 2011 | Jan | Feb | Mar |
|---|---|---|---|
| **Number of cars sold** | 0 | | |
| **3-point moving average** | | 14 | |

(b) Explain how this moving average could be 14

.....

.....

**(1)**
**(Total 3 marks)**

**Q2**



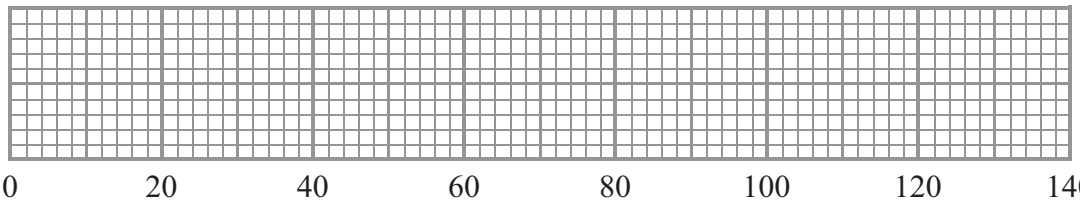
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**3.** The table below shows some information about the total monthly rainfall in Manchester during 2007 and 2008

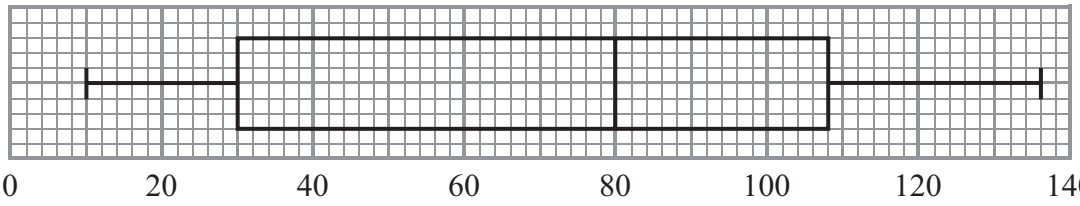
| | Rainfall (mm) |
|---|---|
| Maximum | 86 |
| Minimum | 50 |
| Median | 68 |
| Upper quartile | 80 |
| Lower quartile | 54 |

(a) On the grid, draw a box plot for this information.




**(3)**

The box plot below shows some information about the total monthly rainfall in Eastbourne during 2007 and 2008




(b) Compare the distribution of the rainfall in Manchester and the distribution of the rainfall in Eastbourne.

.....

.....

.....

.....

**(2)** **Q3**

**(Total 5 marks)**



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Leave blank

**4.** Jeff recorded the times taken to wash 60 cars at a car wash.
The grouped frequency table shows some information about these times.

| Time taken ($t$ minutes) | Frequency |
|---|---|
| $0 < t \leqslant 5$ | 8 |
| $5 < t \leqslant 10$ | 12 |
| $10 < t \leqslant 15$ | 22 |
| $15 < t \leqslant 20$ | 13 |
| $20 < t \leqslant 25$ | 5 |

(a) Complete the cumulative frequency table.

| Time taken ($t$ minutes) | Cumulative Frequency |
|---|---|
| $0 < t \leqslant 5$ | 8 |
| $0 < t \leqslant 10$ | |
| $0 < t \leqslant 15$ | |
| $0 < t \leqslant 20$ | |
| $0 < t \leqslant 25$ | |

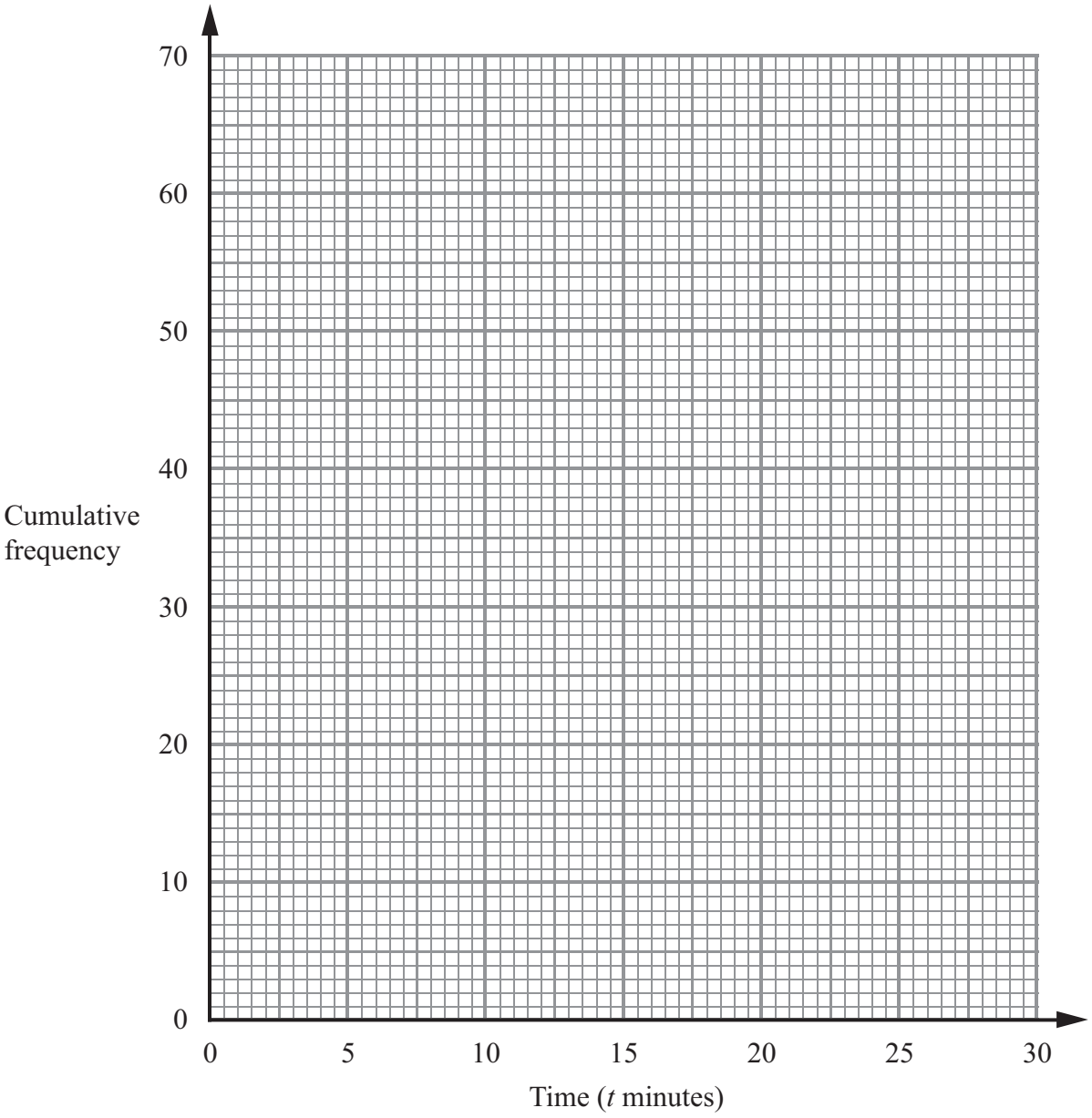
**(1)**



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(b) On the grid, draw a cumulative frequency graph for your table.




**(2)** **Q4**

**(Total 3 marks)**

**TOTAL FOR SECTION B: 15 MARKS**
**TOTAL FOR PAPER: 30 MARKS**

**END**



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# Mark Scheme (Results)

June 2011

## GCSE Mathematics (5381H)
## Paper 6A (Calculator)

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

**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 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 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.
If there is no answer on the answer line then check the working for an obvious answer.
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 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.

**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: e.g. incorrect canceling 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 e.g. 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.

**10 Money notation**

Accepted with and without the “p” at the end.

**11 Range of answers**

Unless otherwise stated, when any answer is given as a range (e.g 3.5 – 4.2) then this is inclusive of the end points (e.g 3.5, 4.2) and includes all numbers within the range (e.g 4, 4.1).

| 5381H/6A | | | | | |
|---|---|---|---|---|---|
| **Question** | | **Working** | **Answer** | **Mark** | **Notes** |
| 1 | (a) | $1-(0.30+0.25+0.30) = 1-0.85$ | 0.15 | 2 | M1 for $1-(0.3+0.25+0.3)$ oe<br>A1 for 0.15 oe |
| | (b) | $200 \times 0.30 =$ | 60 | 2 | M1 for $200 \times 0.3$ oe<br>A1 cao<br>(SC B1 for 60/200) |
| 2 | (a) | $(3\times15)+(10\times25)+(13\times35)+(4\times45) =$<br>$45+250+455+180 = 930$<br>$930\div30$ | 31 | 4 | M1 for $f \times$ consistent part of interval (allow 1 error)<br>M1 for $f \times$ mid-interval (allow 1 error)<br>M1 (dep on at least M1 scored) for '930'÷30<br>A1 cao |
| | (b) | | 30 | 1 | B1 cao |
| 3 | | $\frac{7380}{25460} \times 500 = 144.9$ | 145 | 2 | M1 for $\frac{7380}{25460} \times 500$ oe or 144.(9…) seen<br>A1 cao |
| 4 | | $(\frac{7}{10}\times\frac{4}{10}\times\frac{5}{10})+$<br>$(\frac{3}{10}\times\frac{6}{10}\times\frac{5}{10})+(\frac{3}{10}\times\frac{4}{10}\times\frac{5}{10})$<br>$= (\frac{140}{1000}\times\frac{90}{1000}\times\frac{60}{1000})$ | 290/1000 | 4 | M1 for $\frac{7}{10}$ or $\frac{6}{10}$ or $\frac{5}{10}$ seen<br>M1 for $(\frac{7}{10}\times\frac{4}{10}\times\frac{5}{10})$ or $(\frac{3}{10}\times\frac{6}{10}\times\frac{5}{10})$ or $(\frac{3}{10}\times\frac{4}{10}\times\frac{5}{10})$ oe<br>OR $\frac{7}{10}\times\frac{6}{10}\times\frac{5}{10}(=\frac{240}{1000})$ or $\frac{7}{10}\times\frac{6}{9}\times\frac{5}{8}(=\frac{210}{720})$ oe<br>M1 $(\frac{7}{10}\times\frac{4}{10}\times\frac{5}{10})+(\frac{3}{10}\times\frac{6}{10}\times\frac{5}{10})+(\frac{3}{10}\times\frac{4}{10}\times\frac{5}{10})$<br>A1 for $\frac{290}{1000}$ oe<br>(SC B1 for $\frac{18}{30}$ oe) |

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# Mark Scheme (Results)

June 2011

## GCSE Mathematics (5381H)
## Paper 6B (Non-Calculator)

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

**2 Abbreviations**

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

**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 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 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.
If there is no answer on the answer line then check the working for an obvious answer.
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 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.

**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: e.g. incorrect canceling 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 e.g. 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.

**10 Money notation**

Accepted with and without the “p” at the end.

**11 Range of answers**

Unless otherwise stated, when any answer is given as a range (e.g 3.5 – 4.2) then this is inclusive of the end points (e.g 3.5, 4.2) and includes all numbers within the range (e.g 4, 4.1).

| 5381H/6B | | | | | |
|---|---|---|---|---|---|
| **Question** | | **Working** | **Answer** | **Mark** | **Notes** |
| 1 | (a) | (40,60) and (50,75) | points plotted | 1 | B1 for points plotted within guidelines |
| | (b) | e.g. as one goes up the other goes up | relationship | 1 | B1 for e.g. as one goes up the other goes up or (accept positive correlation) |
| | (c) | | line | 1 | B1 for line drawn between (14, 16) and (14, 38) to (60, 60) and (60, 82) (overlay) |
| | (d) | | 62−82 | 1 | B1 for 62−82 or ft their lobf with positive gradient (tolerance ±1 sq) |
| 2 | (a) | (18+14+16)÷3 = 48÷3 | 16 | 2 | M1 for (18+14+16)÷3 or 48÷3 seen<br>A1 for 16 in table |
| | (b) | (e.g.) Feb & Mar could sum to 42 | explanation | 1 | B1 for e.g. F(eb)+M(ar) = 42 oe or gives values for Feb and Mar totalling 42 (may be seen in table) |
| 3 | (a) | markings at 50, 54, 68, 80, 86 | box plot | 3 | B3 for fully correct box plot<br>(B2 for 4 correctly plotted values with box **and** whiskers)<br>(B1 for 3 correctly plotted values with box **or** whiskers) |
| | (b) | | comparison | 2 | B1 for comparison of a specific value<br>(e.g. comparing max values or medians)<br>B1 for comparison of spread<br>e.g. range of one is greater than range of other or interquartile range of one is greater than other<br>(If seen accept comparison of skewness, e.g. both negatively skewed, as an alternative to spread) |

| 5381H/6B | | | | |
|---|---|---|---|---|
| **Question** | **Working** | **Answer** | **Mark** | **Notes** |
| 4 (a) | 8, 20, 42, 55, 60 | 8, 20, 42, 55, 60 | 1 | B1 cao |
| (b) | | cf graph | 2 | B2 ft for fully correct cf graph from their table (±1 sq) provided no part has a negative gradient (accept points joined by curve or line segments and ignore any part of graph outside range of points)<br><br>(B1 ft for 4 or 5 points from their table plotted at end of intervals (±1 sq) provided no part has a negative gradient OR for 4 or 5 points from their table plotted not at end but consistently within each interval and joined ±1 sq) |

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Order Code UG028376 June 2011

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| Centre No. | | | | | | Paper Reference | | | | | | | | Surname | Initial(s) |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Candidate No. | | | | | | 5 | 3 | 8 | 1 | H | / | 6 | A | Signature | |

Paper Reference(s)

**5381H/6A**

# Edexcel GCSE

## Mathematics (Modular) – 2381

Paper 6 – Section A (Calculator)

# Higher Tier

Unit 1 Test – Data Handling

Tuesday 1 March 2011 – Morning

Time for Section A: 20 minutes



Examiner's use only

| | | |
|---|---|---|
| | | |

Team Leader's use only

| | | |
|---|---|---|
| | | |

| Section | Leave Blank |
|---|---|
| A | |
| B | |

**Materials required for examination**
Ruler graduated in centimetres and millimetres, protractor, compasses, pen, HB pencil, eraser, calculator.
Tracing paper may be used.

**Items included with question papers**
Nil

## Instructions to Candidates

In the boxes above, write your centre number, candidate number, your surname, initials and signature.
Check that you have the correct question paper.
Answer ALL the questions. Write your answers in the spaces provided in this question paper.
If you need more space to complete your answer to any question, use additional answer sheets.

## Information for Candidates

The marks for individual questions and the parts of questions are shown in round brackets: e.g. **(2)**.
This section has 6 questions. The total mark for this section is 15. The total mark for this paper is 30.
There are 8 pages in this question paper. Any blank pages are indicated.
**Calculators may be used for Section A only.**
If your calculator does not have a π button, take the value of π to be 3.142 unless the question instructs otherwise.

## Advice to Candidates

Show all stages in any calculations.
Work steadily through the paper. Do not spend too long on one question.
If you cannot answer a question, leave it and attempt the next one.
Return at the end to those you have left out.

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Leave blank

## SECTION A

**Answer ALL SIX questions.**

**Write your answers in the spaces provided.**

**You may use a calculator in this section.**

**You must write down all stages in your working.**

**1.** There are only red counters, blue counters and white counters in a bag.

The table gives the probabilities that when a counter is taken at random from the bag the counter will be red, or blue or white.

| **Colour** | **Red** | **Blue** | **White** |
|---|---|---|---|
| **Probability** | 0.35 | 0.45 | 0.20 |

Carmen takes at random a counter from the bag.
She records the colour of the counter and then puts it back in the bag.
Carmen does this a total of 200 times.

Estimate the number of times she will take a red counter from the bag.

.....

**(Total 2 marks)**

**Q1**



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Leave blank

**2.** Joe wants to find out how far students travel to school each day.
He uses this question on a questionnaire.

"How far do you travel to school each day?"

☐ 1 – 2 ☐ 2 – 3 ☐ 4 – 5 ☐ more than 5

Write down **two** things that are wrong with this question.

1 .....

.....

2 .....

.....

**Q2**

**(Total 2 marks)**



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Leave blank

**3.** The table gives information about the weights of 50 letters.

| Weight of letter ($w$ grams) | Frequency |
|---|---|
| $50 < w \leqslant 100$ | 4 |
| $100 < w \leqslant 150$ | 6 |
| $150 < w \leqslant 200$ | 10 |
| $200 < w \leqslant 250$ | 18 |
| $250 < w \leqslant 300$ | 12 |

Work out an estimate for the mean weight.

..... grams

**Q3**

**(Total 3 marks)**



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Leave blank

**4.** The table gives the number of visitors to an art gallery from Monday to Saturday last week.

| **Day** | **Mon** | **Tues** | **Wed** | **Thurs** | **Fri** | **Sat** |
|---|---|---|---|---|---|---|
| **Number of visitors** | 68 | 75 | 49 | 83 | 78 | 85 |

(a) Work out the 3-point moving averages for this information.
The first two have been done for you.

64, 69, ..... , .....

**(2)**

(b) Describe what the moving averages show about the trend in the numbers of visitors to the art gallery last week.

.....

**(1)**

**Q4**

**(Total 3 marks)**



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Leave blank

**5.** 200 people each went on one of three tours, Tour A, Tour B and Tour C.
The table shows some information about the number of people on each tour.

| | Number of people | | |
|---|---|---|---|
| **Gender** | **Tour A** | **Tour B** | **Tour C** |
| **Male** | 36 | 18 | 41 |
| **Female** | 42 | 27 | 36 |

Lisa takes a sample of 25 of these people stratified by gender and by tour.
Work out the number of males from Tour B in her sample.

.....

**(Total 2 marks)**

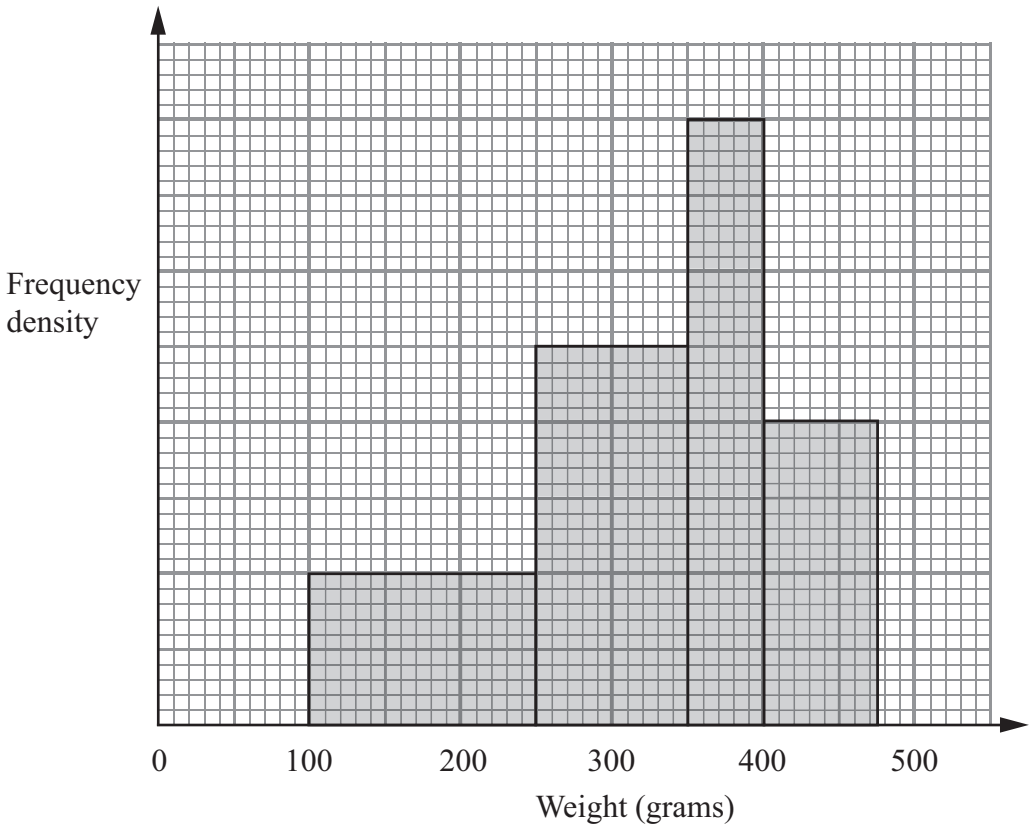
**Q5**



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Leave blank

**6.** The histogram gives information about the weights of 75 letters.




Work out an estimate for the number of letters with a weight greater than 325 grams.

.....

**(Total 3 marks)**

**Q6**

**TOTAL FOR SECTION A: 15 MARKS**

**END**



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| Centre No. | | | | | | Paper Reference | | | | | | | | Surname | Initial(s) |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Candidate No. | | | | | | 5 | 3 | 8 | 1 | H | / | 6 | B | Signature | |

Paper Reference(s)

**5381H/6B**

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Team Leader's use only

# Edexcel GCSE

## Mathematics (Modular) – 2381

Paper 6 – Section B (Non-Calculator)

# Higher Tier



Unit 1 Test – Data Handling

Tuesday 1 March 2011 – Morning

Time for Section B: 20 minutes

**Materials required for examination**
Ruler graduated in centimetres and millimetres, protractor, compasses, pen, HB pencil, eraser.
Tracing paper may be used.

**Items included with question papers**
Nil

### Instructions to Candidates

In the boxes above, write your centre number, candidate number, your surname, initials and signature.
Check that you have the correct question paper.
Answer ALL the questions. Write your answers in the spaces provided in this question paper.
If you need more space to complete your answer to any question, use additional answer sheets.

### Information for Candidates

The marks for individual questions and the parts of questions are shown in round brackets: e.g. **(2)**.
This section has 5 questions. The total mark for this section is 15. The total mark for this paper is 30.
There are 8 pages in this question paper. Any blank pages are indicated.
**Calculators may be used for Section A only.**

### Advice to Candidates

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Work steadily through the paper. Do not spend too long on one question.
If you cannot answer a question, leave it and attempt the next one.
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## SECTION B

**Answer ALL FIVE questions.**

**Write your answers in the spaces provided.**

**You must NOT use a calculator in this section.**

**You must write down all stages in your working.**

**1.** Wendy records the number of people in each of 20 buses.

Here are her results.

| | | | | |
|---|---|---|---|---|
| 12 | 20 | 32 | 41 | 33 |
| 43 | 44 | 25 | 37 | 18 |
| 34 | 23 | 14 | 16 | 36 |
| 25 | 19 | 45 | 28 | 39 |

Draw an ordered stem and leaf diagram to show Wendy's results.
You must include a key.

| | |
|---|---|
| | |
| | |
| | |
| | |

Key:

**Q1**

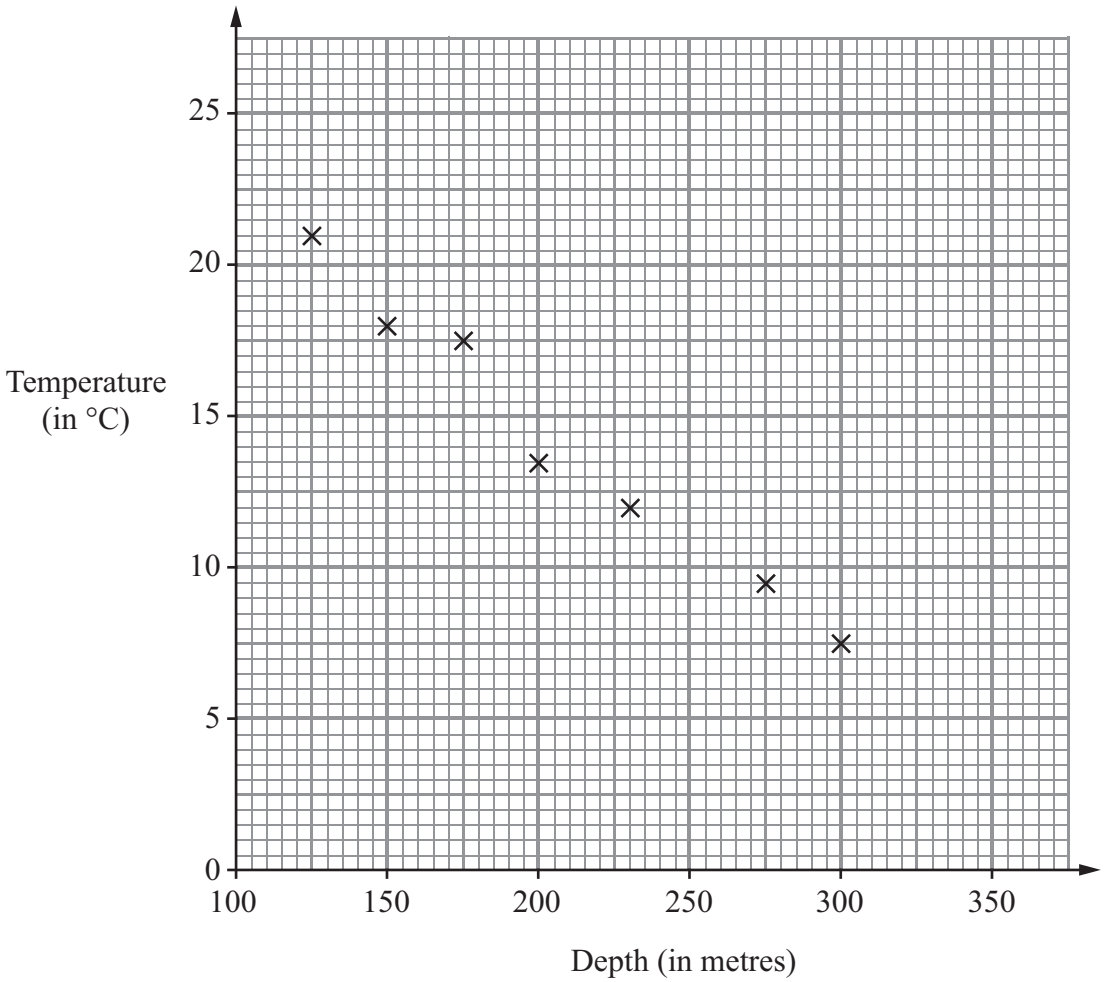
**(Total 3 marks)**



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**2.** A scientist recorded the temperature of the sea at each of 7 depths.
The scatter graph shows information about these temperatures.




(a) Describe the relationship between the depth and the temperature of the sea.

.....

.....

**(1)**

(b) Estimate the temperature of the sea at a depth of 250 metres.

.....°C

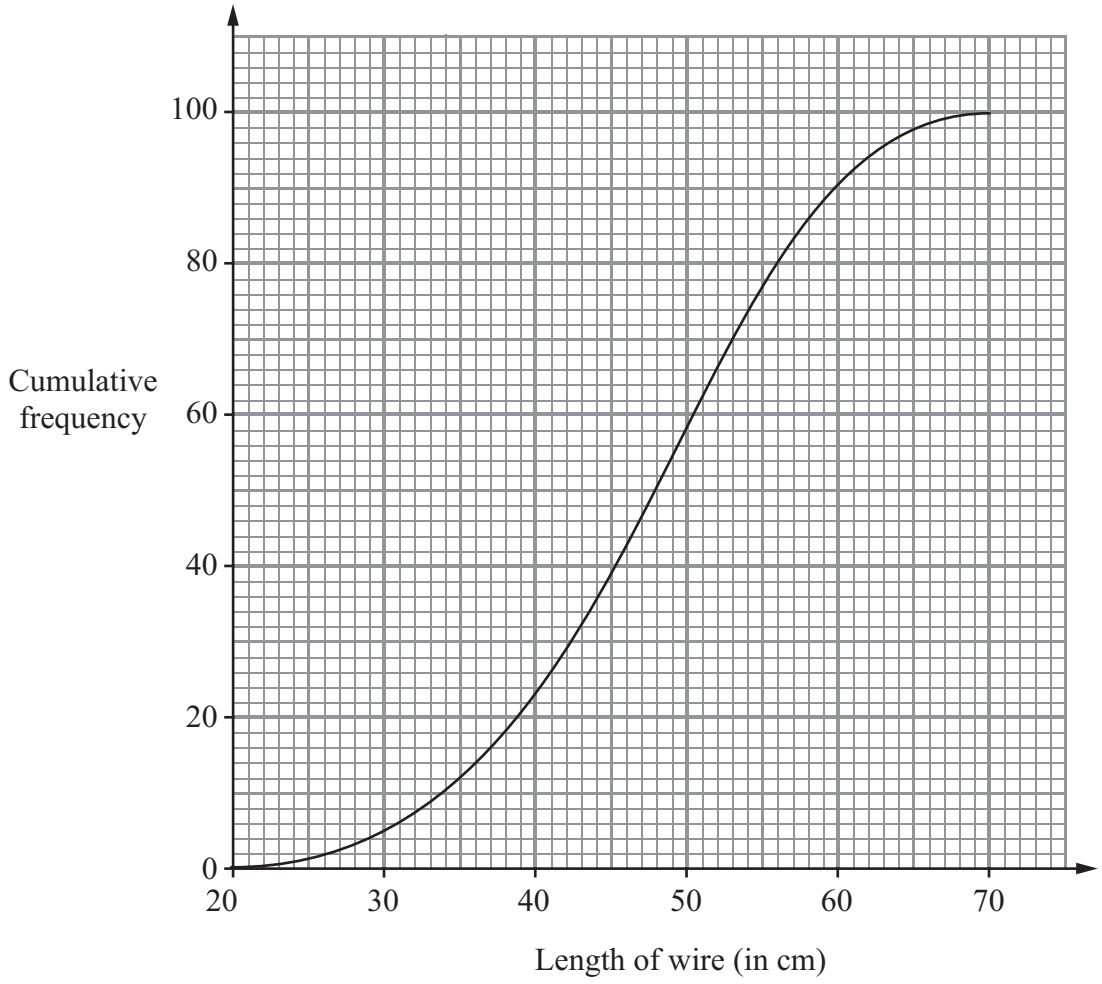
**(2)**

**Q2**

**(Total 3 marks)**

Leave blank

**3.** The cumulative frequency graph gives information about the lengths of 100 pieces of wire.




Find an estimate for the number of pieces of wire with a length greater than 57 cm.

.....

**(Total 2 marks)**

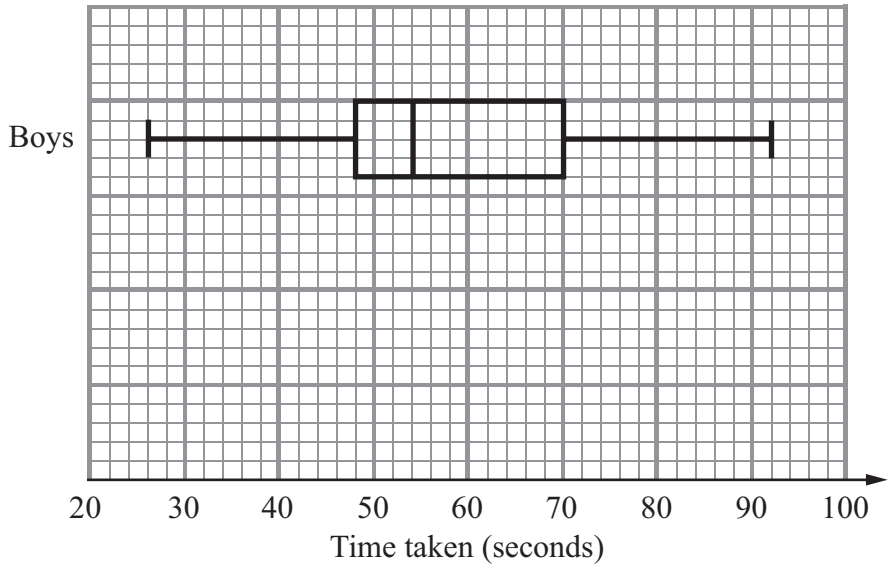
**Q3**



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**4.** The box plot shows the distribution of the times taken, in seconds, by some boys to complete a task.




The table gives information about the times taken, in seconds, by some girls to complete the same task.

| | **Seconds** |
|---|---|
| Shortest time | 36 |
| Lower quartile | 48 |
| Median | 58 |
| Upper quartile | 80 |
| Longest time | 90 |

(a) On the grid, draw a box plot to show the information in the table.

**(2)**

(b) Make two comparisons between the distribution of the times taken by the boys to complete the task and the distribution of the times taken by the girls to complete the same task.

1 .....

.....

2 .....

.....

**(2)**

**Q4**

**(Total 4 marks)**

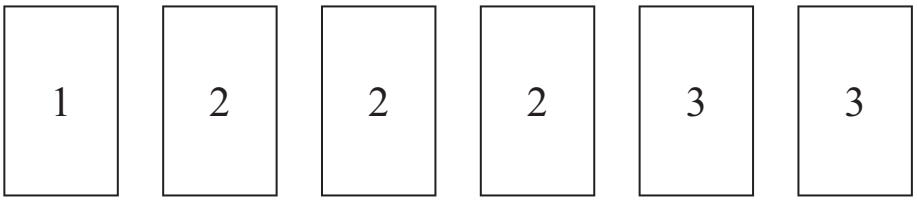


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**5.** Henri has six cards.

The six cards are numbered 1, 2, 2, 2, 3 and 3




Henri takes at random two of these cards.

Work out the probability that the total of the numbers on the two cards is an even number.

.....

**Q5**

**(Total 3 marks)**

**TOTAL FOR SECTION B: 15 MARKS**
**TOTAL FOR PAPER: 30 MARKS**

**END**



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# Mark Scheme (Results)

## March 2011

GCSE

GCSE Mathematics (Modular) - 2381
Paper: 5381H/6A

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Ask The Expert can be accessed online at the following link:
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## 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
isw – ignore subsequent working
oe – or equivalent (and appropriate)
indep - independent
ft – follow through
SC: special case
dep – dependent

**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 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 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.
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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 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.



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**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: e.g. incorrect canceling 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 e.g. 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.

**10 Money notation**

Accepted with and without the “p” at the end.

**11 Range of answers**

Unless otherwise stated, when any answer is given as a range (e.g 3.5 – 4.2) then this is inclusive of the end points (e.g 3.5, 4.2) and includes all numbers within the range (e.g 4, 4.1).

| 5381H/6A | | | | |
|---|---|---|---|---|
| **Question** | **Working** | **Answer** | **Mark** | **Notes** |
| 1 | $0.35 \times 200$ | 70 | 2 | M1 for $0.35 \times 200$<br>A1 cao |
| 2 | | 2 reasons | 2 | B2 for any two of:<br>No units, e.g. km<br>Overlapping intervals<br>No box for less than 1(km)<br>Poor question with explanation e.g. people may travel different distances on different days<br><br>(B1 for 1 reason) |
| 3 | $[(4 \times 75) + (6 \times 125) + (10 \times 175) + (18 \times 225) + (12 \times 275) \div 50 =$<br><br>$(300 + 750 + 1750 + 4050 + 3300) \div 50 =$<br>$10150 \div 50$ | 203 | 3 | M1 for $f \times x$ with $x$ used consistently within intervals or at ends (condone 1 arithmetic error or 1 incorrect midpoint)<br>M1 (dep) for '10150'÷(4+6+10+18+12)<br>A1 cao |
| 4 (a) | $\frac{49+83+78}{3} = 70$<br><br>$\frac{83+78+85}{3} = 82$ | 70, 82 | 2 | M1 for (49+83+78)÷3 or (83+78+85)÷3 oe with or without brackets<br>(may be implied by one correct answer)<br><br>A1 for 70 and 82 |
| 4 (b) | | increasing | 1 | B1 for upwards or increasing oe or ft from part (a) |



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| 5381H/6A | | | | |
|---|---|---|---|---|
| **Question** | **Working** | **Answer** | **Mark** | **Notes** |
| 5 | $\frac{18}{200} \times 25 = 2.25$ | 2 | 2 | M1 (18÷200) × 25 oe or 2.25<br>A1 cao<br>SC 2.25 followed by 3 gets both marks |
| 6 | 30 ($cm^2$) = 75<br>1 ($cm^2$) = 75÷30 = 2.5<br>16.5 × 2.5 = 41.25<br>or 6.25 + 20 + 15 = 41.25<br><br>**or**<br><br>150× k + 100× 2.5k+50× 4k+75×2k=75<br>(k = 0.1)<br>25× 2.5k+50×4k+75× 2k = 412.5× k<br>412.5× 0.1 = 41.25 | 41 | 3 | M1 for Total area = 75, such as 30 ($cm^2$) = 75<br>**or** 1 ($cm^2$) = 75÷30<br>**or** 2.5 oe or 750 small squares = 75<br>**or** 1 small square =75 ÷750oe or 0.1 seen<br><br>M1 (dep) for 16.5×'2.5' oe or 412.5×'0.1'<br><br>A1 accept 41, 41.25, 41.2, 41.3<br><br>**or**<br><br>M2 Use of 2 or 3 of 6.25, 20, 15 in the working or on the diagram explicitly linked to the correct parts of the histogram<br>A1 accept 41, 41.25, 41.2, 41.3<br><br>M1 for 150× k + 100× 2.5k+50× 4k+75× 2k = 75 oe or correct scaling e.g. 0.1, 0.2,<br>M1 for 25× 2.5'k'+50×4'k'+75× 2'k' = 412.5× 'k' oe<br>A1 accept 41, 41.25, 41.2, 41.3 |



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# Mark Scheme (Results)

## March 2011

GCSE

## GCSE Mathematics (Modular) - 2381
## Paper: 5381H/6B

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March 2011

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| 5381H/6B | | | | |
|---|---|---|---|---|
| **Question** | **Working** | **Answer** | **Mark** | **Notes** |
| 1 | 1 \| 2 8 4 6 9<br>2 \| 0 5 3 5 8<br>3 \| 2 3 7 4 6 9<br>4 \| 1 3 4 5<br><br>**Or**<br><br>1 \| 2 9 4 6 8<br>2 \| 5 0 3 5 8<br>3 \| 4 2 7 3 6 9<br>4 \| 3 4 5 1 | 1 \| 2 4 6 8 9<br>2 \| 0 3 5 5 8<br>3 \| 2 3 4 6 7 9<br>4 \| 1 3 4 5<br><br>Key 1\|2 means 12 people | 3 | M1 for unordered stem and leaf diagram (condone 2 errors, 1 number misplaced counts as 1 error; an omission is 1 error).<br>Note: ignore commas; accept inconsistent/absent spacing; accept 10, 20, 30 40 as stem<br>A1 cao<br><br>B1 for correct key, e.g. 1\|2 means 12 (people)<br><br>NB If an ordered and unordered diagram are presented mark the ordered. |
| 2 (a) | | e.g. as the temperature increases the depth decreases | 1 | B1 for negative correlation<br><br>**or** as the depth increases the temperature decreases (oe)<br><br>**or** as the depth decreases the temperature increases (oe)<br><br>**or** the higher the temperature the smaller the depth (oe)<br><br>**or** the lower the temperature the greater the depth (oe)<br><br>**or** the lower the depth goes so does the temperature |
| 2 (b) | | $10-12.5$ | 2 | M1 for a single line segment with negative gradient that could be used as a line of best fit or a vertical line from 250<br>A1 for given answer in range $10-12.5$ |



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<table>
<tr><th colspan="5">5381H/6B</th></tr>
<tr><th>Question</th><th>Working</th><th>Answer</th><th>Mark</th><th>Notes</th></tr>
<tr><td>3</td><td>$100-83$</td><td>17</td><td>2</td><td>M1 for line drawn from 57 and at 81 to 85 or values 82, 83, 84 seen<br>A1 for answer in range $16-18$</td></tr>
<tr><td>4 (a)</td><td></td><td></td><td>Box plot</td><td>2</td></tr>
<tr><td>(b)</td><td></td><td><table><tr><td></td><td>B</td><td>G</td></tr><tr><td>Min</td><td>26</td><td>36</td></tr><tr><td>LQ</td><td>48</td><td>48</td></tr><tr><td>M</td><td>54</td><td>58</td></tr><tr><td>UQ</td><td>70</td><td>80</td></tr><tr><td>Max</td><td>92</td><td>90</td></tr><tr><td>Range</td><td>66</td><td>54</td></tr><tr><td>IQR</td><td>22</td><td>32</td></tr></table></td><td>2 comparisons</td><td>2</td></tr>
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<td>5</td>
<td>P(2,2)+P(3,3)+P(1,3)<br>$\frac{3}{6}\times\frac{2}{5}+\frac{2}{6}\times\frac{1}{5}+2\times\frac{1}{6}\times\frac{2}{5}$<br><br>OR<br><br>P(even,even) + P(odd, odd)<br>$\frac{3}{6}\times\frac{2}{5}$ + $\frac{3}{6}\times\frac{2}{5}$<br><br>Or<br><br>
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</td>
<td>$\frac{2}{5}$</td>
<td>3</td>
<td>M1 for $\frac{3}{6}\times\frac{2}{5}$ or $\frac{2}{6}\times\frac{1}{5}$ or $\frac{1}{6}\times\frac{2}{5}$<br>M1 for $\frac{3}{6}\times\frac{2}{5}+\frac{2}{6}\times\frac{1}{5}+2\times\frac{1}{6}\times\frac{2}{5}$<br>A1 for $\frac{2}{5}$ oe<br><br>OR<br>M1 for $\frac{3}{6}\times\frac{2}{5}$<br>M1 for $\frac{3}{6}\times\frac{2}{5}$ + $\frac{3}{6}\times\frac{2}{5}$<br><br>A1 for $\frac{2}{5}$ oe<br><br>Or<br><br>M2 for correct sample space diagram (ignore values in leading diagonal) or lists all possible combinations and uses number of even totals off the leading diagonal ÷ number of all totals off the leading diagonal oe<br>A1 cao<br><br>Special case (with replacement)<br>B2 for $\frac{1}{2}$ oe must see working</td>
</tr>
</table>



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| Centre No. | | | | | | Paper Reference | | | | | | | | Surname | Initial(s) |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Candidate No. | | | | | | 5 | 3 | 8 | 1 | H | / | 6 | A | Signature | |

Paper Reference(s)

**5381H/6A**

# Edexcel GCSE

## Mathematics (Modular) – 2381

Paper 6 – Section A (Calculator)

# Higher Tier



Unit 1 Test – Data Handling

Monday 15 November 2010 – Morning

Time for Section A: 20 minutes

Examiner's use only

| | | |
|---|---|---|
| | | |

Team Leader's use only

| | | |
|---|---|---|
| | | |

| Section | Leave Blank |
|---|---|
| A | |
| B | |

**Materials required for examination**
Ruler graduated in centimetres and millimetres, protractor, compasses, pen, HB pencil, eraser, calculator.
Tracing paper may be used.

**Items included with question papers**
Nil

### Instructions to Candidates

In the boxes above, write your centre number, candidate number, your surname, initials and signature.
Check that you have the correct question paper.
Answer ALL the questions. Write your answers in the spaces provided in this question paper.
If you need more space to complete your answer to any question, use additional answer sheets.

### Information for Candidates

The marks for individual questions and the parts of questions are shown in round brackets: e.g. **(2)**.
This section has 4 questions. The total mark for this section is 15. The total mark for this paper is 30.
There are 8 pages in this question paper. Any blank pages are indicated.
**Calculators may be used for Section A only.**
If your calculator does not have a π button, take the value of π to be 3.142 unless the question instructs otherwise.

### Advice to Candidates

Show all stages in any calculations.
Work steadily through the paper. Do not spend too long on one question.
If you cannot answer a question, leave it and attempt the next one.
Return at the end to those you have left out.

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**SECTION A**

**Answer ALL FOUR questions.**

**Write your answers in the spaces provided.**

**You must write down all stages in your working.**

**You may use a calculator in this section.**

**1.** There are some red, white, yellow and blue beads in a bag.
Azim is going to take at random one bead from the bag.

The table shows the probabilities that Azim will take a red bead or a white bead or a yellow bead.

| **Colour** | Red | White | Yellow | Blue |
|---|---|---|---|---|
| **Probability** | 0.5 | 0.2 | 0.1 | |

Work out the probability that Azim will take a blue bead.

.....

**Q1**

**(Total 2 marks)**



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**2.** Melissa records the numbers of hours 30 people were at a gym one month.
The table shows information about her results.

| **Number of hours ($n$)** | **Frequency** | | |
|---|---|---|---|
| $5 < n \leqslant 15$ | 1 | | |
| $15 < n \leqslant 25$ | 10 | | |
| $25 < n \leqslant 35$ | 3 | | |
| $35 < n \leqslant 45$ | 8 | | |
| $45 < n \leqslant 55$ | 8 | | |

(a) Write down the modal class interval.

.....

**(1)**

(b) Work out the median class interval.

.....

**(1)**

(c) Work out an estimate for the mean.

..... hours

**(4)**

**(Total 6 marks)**

**Q2**





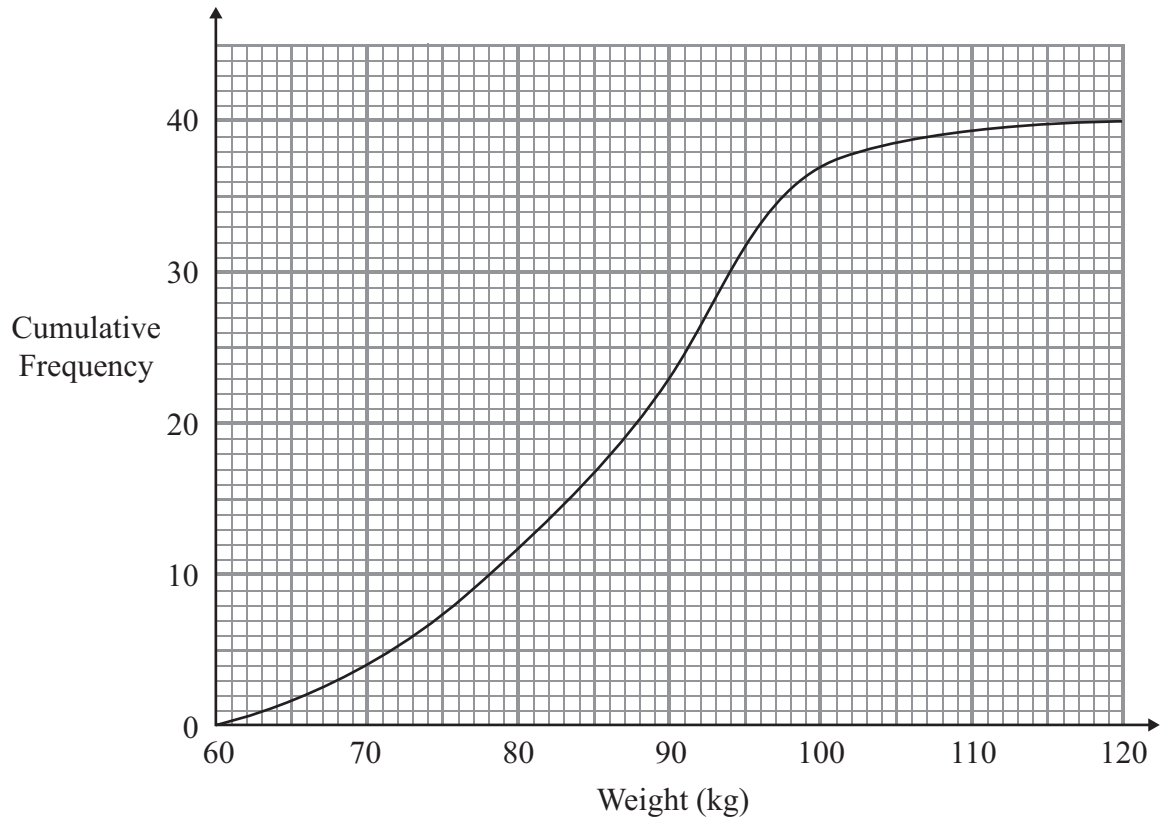


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**3.** Rachel works at a slimming club.
She recorded the weights, in kg, of 40 members of the slimming club.

The cumulative frequency graph shows information about her results.




(a) Use the graph to work out an estimate for the interquartile range.

..... kg
**(2)**

(b) Use the graph to work out an estimate for the number of members who weighed **more** than 100 kg.

.....
**(2)**

**Q3**

**(Total 4 marks)**



N 3 7 7 1 0 A 0 4 0 8

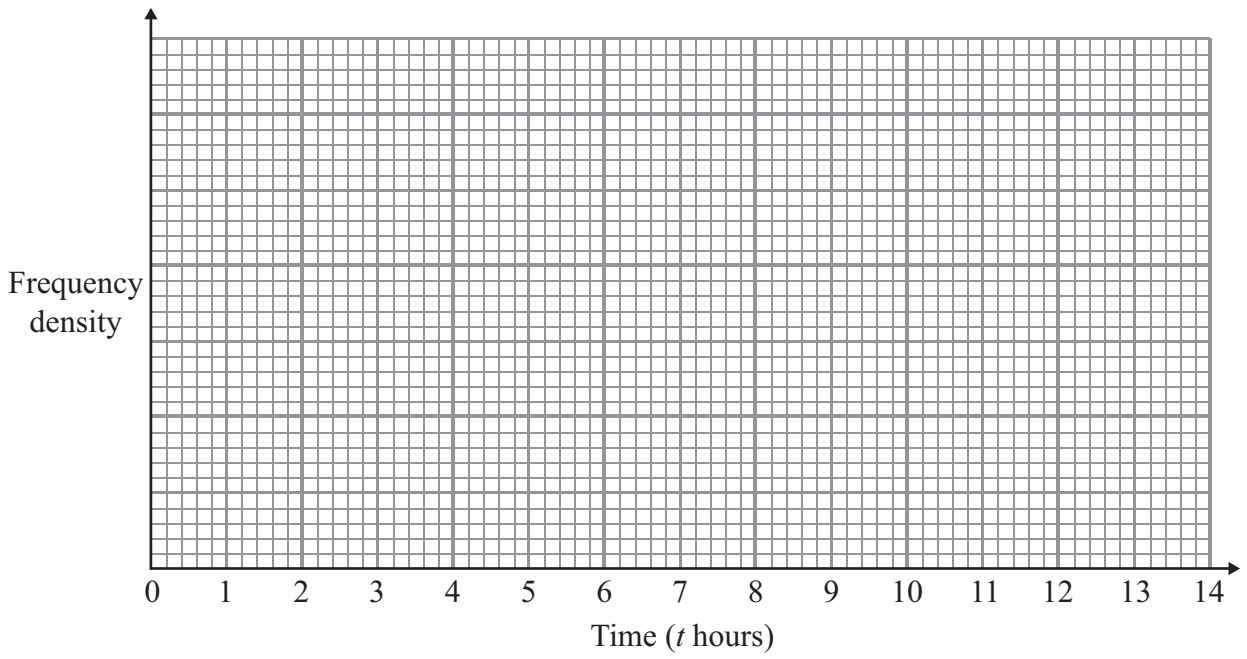
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**4.** 40 cars were parked in a car park.
The table shows information about the times, in hours, that each car was parked.

| Time ($t$ hours) | Frequency |
|---|---|
| $0 < t \leqslant 3$ | 9 |
| $3 < t \leqslant 5$ | 10 |
| $5 < t \leqslant 9$ | 16 |
| $9 < t \leqslant 14$ | 5 |

Draw a histogram for this information.




**Q4**

**(Total 3 marks)**

**TOTAL FOR SECTION A: 15 MARKS**

**END**



N 3 7 7 1 0 A 0 5 0 8

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N 3 7 7 1 0 A 0 6 0 8

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N 3 7 7 1 0 A 0 8 0 8

| Centre No. | | | | | | Paper Reference | | | | | | | | Surname | Initial(s) |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Candidate No. | | | | | | 5 | 3 | 8 | 1 | H | / | 6 | B | Signature | |

Paper Reference(s)

**5381H/6B**

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|---|---|---|
| | | |

Team Leader's use only

| | | |
|---|---|---|
| | | |

# Edexcel GCSE

## Mathematics (Modular) – 2381

Paper 6 – Section B (Non-Calculator)

# Higher Tier



Unit 1 Test – Data Handling

Monday 15 November 2010 – Morning

Time for Section B: 20 minutes

**Materials required for examination**
Ruler graduated in centimetres and millimetres, protractor, compasses, pen, HB pencil, eraser.
Tracing paper may be used.

**Items included with question papers**
Nil

### Instructions to Candidates

In the boxes above, write your centre number, candidate number, your surname, initials and signature.
Check that you have the correct question paper.
Answer ALL the questions. Write your answers in the spaces provided in this question paper.
If you need more space to complete your answer to any question, use additional answer sheets.

### Information for Candidates

The marks for individual questions and the parts of questions are shown in round brackets: e.g. **(2)**.
This section has 5 questions. The total mark for this section is 15. The total mark for this paper is 30.
There are 8 pages in this question paper. Any blank pages are indicated.
**Calculators may be used for Section A only.**

### Advice to Candidates

Show all stages in any calculations.
Work steadily through the paper. Do not spend too long on one question.
If you cannot answer a question, leave it and attempt the next one.
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## SECTION B

**Answer ALL FIVE questions.**

**Write your answers in the spaces provided.**

**You must write down all stages in your working.**

**You must NOT use a calculator in this section.**

**1.** Debbie wants to find out how much money people spend at the supermarket.

She uses this question on a questionnaire.

How much money do you spend at the supermarket?

☐ A lot ☐ Quite a lot ☐ Not very much

(a) Write down **two** things wrong with this question.

1 .....

.....

2 .....

.....

**(2)**

(b) Design a better question for Debbie to use on her questionnaire to find out how much money people spend at the supermarket.
You must include some response boxes.

**(2)** **Q1**

**(Total 4 marks)**

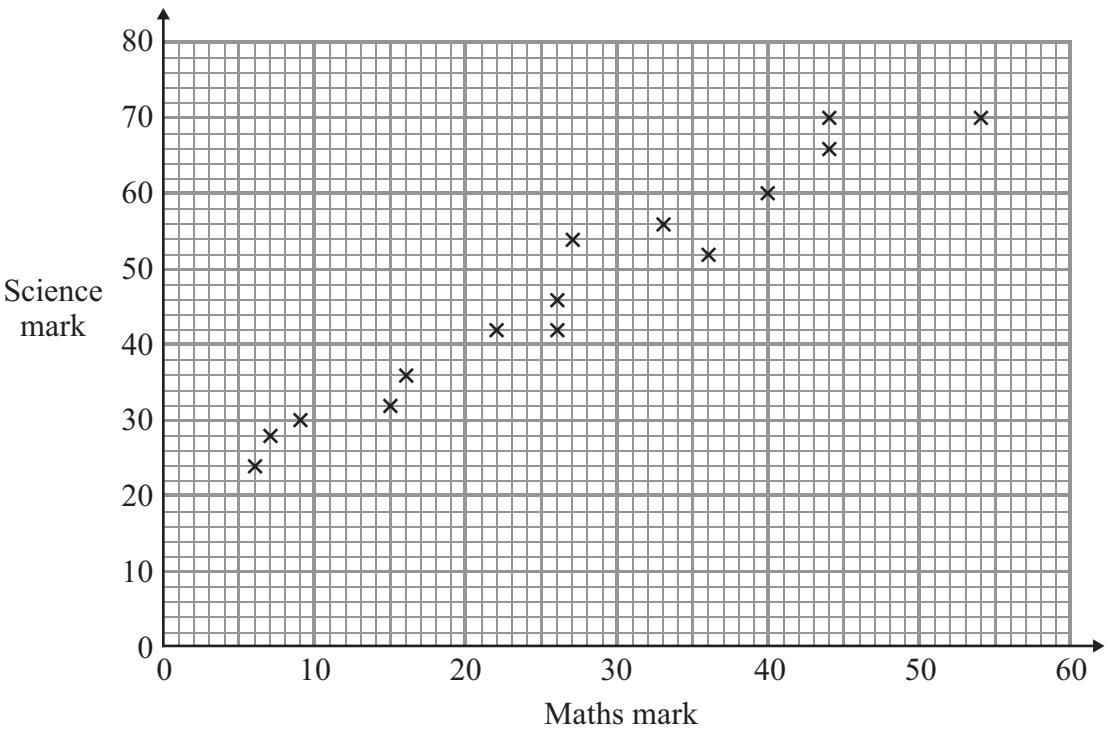


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**2.** 15 students did a Maths test and a Science test.
The scatter graph shows some information about their marks.




(a) Describe the relationship between the Maths marks and the Science marks.

.....

.....

**(1)**

(b) Draw a line of best fit on the scatter graph.

**(1)**

Pierre's Maths mark is 18

(c) Use your line of best fit to find an estimate for Pierre's Science mark.

.....

**(1)**

**Q2**

**(Total 3 marks)**



N 3 7 7 1 1 A 0 3 0 8



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**3.** The table shows the number of cakes sold in a café each week for five weeks.

| Week 1 | Week 2 | Week 3 | Week 4 | Week 5 |
|---|---|---|---|---|
| 38 | 33 | 40 | 53 | 62 |

Work out the **two** 4-week moving averages for this information.

..... , .....

**(Total 2 marks)**

**Q3**

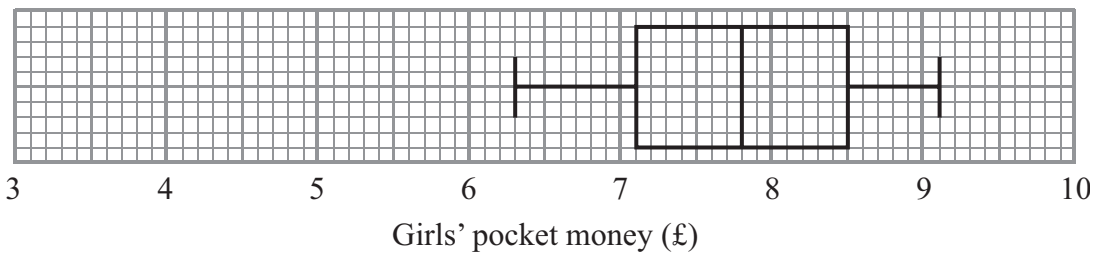


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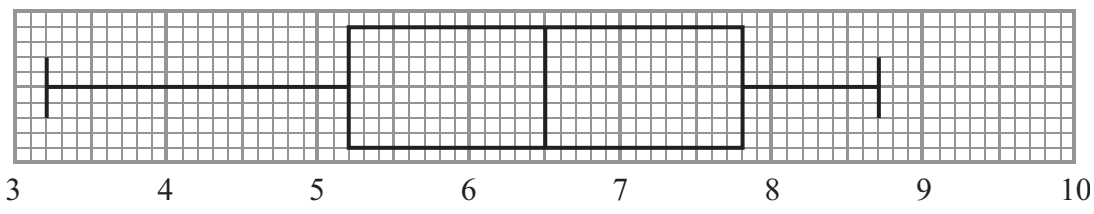
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**4.** The box plots below show information about the pocket money of the girls and the boys in Serge's class.




Girls' pocket money (£)




Boys' pocket money (£)

Make **two** comparisons between the distribution of the girls' pocket money and the distribution of the boys' pocket money.

1 .....

.....

2 .....

.....

**Q4**

**(Total 2 marks)**







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Leave blank

**5.** There are 11 small jars on a table.

3 of the jars contain honey.
8 of the jars contain jam.

Rosie takes, at random, two of the jars for her breakfast.

Work out the probability that she takes at least **one** jar of honey.

.....

**Q5**

**(Total 4 marks)**

**TOTAL FOR SECTION B: 15 MARKS**
**TOTAL FOR PAPER: 30 MARKS**

**END**



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# Mark Scheme (Results)

## November 2010

GCSE

## GCSE Mathematics (5381H)
## Paper 6A

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Ask The Expert can be accessed online at the following link:

http://www.edexcel.com/Aboutus/contact-us/

November 2010

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

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 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 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.
If there is no answer on the answer line then check the working for an obvious answer.
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 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.



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**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: e.g. incorrect canceling 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 e.g. 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.

**10 Range of answers**

Unless otherwise stated, when an answer is given as a range (e.g 3.5 – 4.2) then this is inclusive of the end points (e.g 3.5, 4.2) and includes all numbers within the range (e.g 4, 4.1)



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| 5381H/6A | | | | | |
|---|---|---|---|---|---|
| **Question** | | **Working** | **Answer** | **Mark** | **Notes** |
| A1 | | 1 – (0.5 + 0.2 + 0.1)<br>= 1 – 0.8 | 0.2 | 2 | M1 for 1 – (0.5 + 0.2 + 0.1) oe<br>A1 for 0.2 oe seen in either the table or on the answer line |
| A2 | (a) | | $15 < n \leq 25$ | 1 | B1 for selecting correct class interval e.g $15 < n \leq 25$ or 15 – 25 oe |
| | (b) | | $35 < n \leq 45$ | 1 | B1 for selecting correct class interval e.g $35 < n \leq 45$ or 35 – 45 oe |
| | (c) | ( (10 × 1) + (20 × 10) + (30 × 3) + (40 × 8) + (50 × 8) )<br>= 10 + 200 + 90 + 320 + 400<br>= 1020<br>1020 ÷ 30 = 34 | 34 | 4 | M1 for $fx$ with $x$ consistent within intervals (including end points) condone one error in multiplication<br>M1 (dep) for use of midpoints condone one error<br>M1 (dep on 1st M1) for use of $\Sigma fx \div \Sigma f$<br>A1 cao<br>**NB** 1020 seen with an answer of 204 scores 2 marks<br>An answer of 204 without working scores no marks<br>The common response of 30 ÷ 5 = 6 also scores 0. |
| A3 | (a) | UQ – LQ = 94 – 78 | 16 | 2 | M1 for establishing the Upper and/or lower quartile as 94 or 78 or sight of 94 or 78<br>A1 for 16 cao |
| | (b) | 40 – 37 | 3 | 2 | M1 for establishing the number of people who weighed up to 100 kg or sight of 37 ± 1 or 40 –"37"<br>A1 for 3 ± 1 |



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| Question | Working | Answer | Mark | Notes |
|---|---|---|---|---|
| A4 | | heights of 3, 5, 4, 1<br>with correct widths | 3 | M1 for at least 2 frequency ÷ class width<br>or 2 heights correctly drawn with height stated<br>or calculated or heights in the ratio 3 : 5 : 4 :1<br>A2 for all bars correct<br>(A1 for 2 bars correct)<br><br>**Alternative if no working seen**<br>B3 for fully correct histogram with heights in the ratio 3:5:4:1<br>B2 for nearly correct histogram with 3 bars out of 4 correct with 3 heights out of 4 in the ratio 3:5:4:1<br>B1 for partially correct histogram with 2 bars out of 4 correct with 2 heights out of 4 in the ration 3:5:4:1<br><br>**NB** No marks awarded for a bar chart |



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# Mark Scheme (Results)

## November 2010

GCSE

## GCSE Mathematics (5381H)
## Paper 6B

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November 2010

Publications Code UG025833

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**6 Ignoring subsequent work**

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

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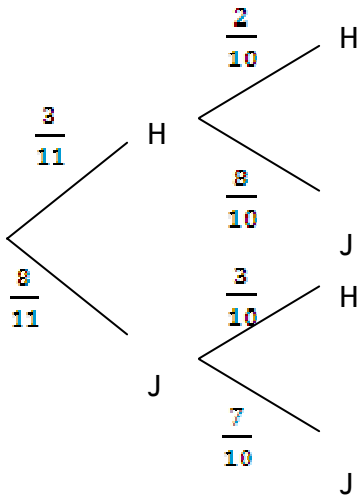
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| 5381H/6B | | | | |
|---|---|---|---|---|
| **Question** | **Working** | **Answer** | **Mark** | **Notes** |
| B1 (a) | | 2 comments | 2 | B1, B1<br>eg for responses boxes too vague oe<br>eg for no time frame |
| (b) | | How much do you spend at the supermarket each week?<br>and at least 3 non overlapping tick boxes to include zero and/or more | 2 | B1 for an appropriate question with a specific time frame, do not accept each visit<br>B1 for at least 3 non-overlapping boxes. They also need to cover zero and/or "more than" e.g. none and £100+<br>Do not accept frequency tables or data collection sheets |
| B2 (a) | | Valid statement | 1 | B1 for statement e.g. the higher the maths mark the higher the science mark, or the lower the science mark the lower the maths mark or as the maths mark goes up the science mark goes up or as the maths mark goes down the science mark goes down etc.<br><br>(accept positive correlation) |
| (b) | | Line of best fit | 1 | B1 for line between (5, 20) and (5, 30)<br>and between (50, 62) and (50, 76) |
| (c) | | 36 ≤ answer ≤ 42 | 1 | B1 for 36 ≤ answer ≤ 42<br>or ft from their straight line segment of positive gradient tolerance ± 1 mark |
| B3 | ( 38 + 33 + 40 + 53 ) ÷ 4 = 164 ÷4<br>( 33 + 40 + 53 + 62 ) ÷ 4 = 188 ÷4 | 41, 47 | 2 | M1 for ( 38 + 33 + 40 + 53 ) ÷ 4 or 164 ÷ 4 or 41<br>or ( 33 + 40 + 53 + 62 ) ÷ 4 or 188 ÷ 4 or 47<br>A1 for both correct |



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| Question | Working | Answer | Mark | Notes |
|---|---|---|---|---|
| B4 | | 2 differences | 2 | B1 for comparison of spread<br><br>eg The range (or inter quartile range) of the boys pocket money is greater than the range of the girls pocket money<br>eg Both the boys and the girls pocket money is neither positively or negatively skewed<br><br>B1 for comparison of a specific value<br><br>eg Highest pocket money for the boys is lower than the highest pocket money for the girls<br>eg The girls median is greater than the boys median or another comparison of a different measure of spread. |

| Question | Working | Answer | Mark | Notes |
|---|---|---|---|---|
| B5 | $(\frac{3}{11} \times \frac{2}{10}) + (\frac{3}{11} \times \frac{8}{10}) + (\frac{8}{11} \times \frac{3}{10})$<br><br>$= \frac{6+24+24}{110}$<br><br>or<br><br>$1 - (\frac{8}{11} \times \frac{7}{10})$<br><br><br> | $\frac{54}{110}$ | 4 | B1 for $\frac{2}{10}$ or $\frac{8}{10}$ or $\frac{3}{10}$ seen as non replacement<br>M1 for $(\frac{3}{11} \times \frac{2}{10})$ or $(\frac{3}{11} \times \frac{8}{10})$ or $(\frac{8}{11} \times \frac{3}{10})$<br>M1 for $(\frac{3}{11} \times \frac{2}{10}) + (\frac{3}{11} \times \frac{8}{10}) + (\frac{8}{11} \times \frac{3}{10})$<br>A1 for $\frac{54}{110}$ o.e.<br>**Alternative scheme for 1 – p(jam, jam)**<br>B1 for $\frac{7}{10}$ seen as non replacement<br>M2 for $1 - (\frac{8}{11} \times \frac{7}{10})$ or $1 - (\frac{56}{110})$<br>A1 for $\frac{54}{110}$<br><br>**Alternative scheme for replacement**<br>B0 for $\frac{3}{11}$ or $\frac{8}{11}$ or $\frac{3}{11}$ seen as 2nd probability<br>M1 for $(\frac{3}{11} \times \frac{3}{11})$ or $(\frac{3}{11} \times \frac{8}{11})$ or $(\frac{8}{11} \times \frac{3}{11})$<br>M1 for $(\frac{3}{11} \times \frac{3}{11}) + (\frac{3}{11} \times \frac{8}{11}) + (\frac{8}{11} \times \frac{3}{11})$<br>A0 for $\frac{57}{121}$ o.e. |



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| Question | Working | Answer | Mark | Notes |
|---|---|---|---|---|
| | | | | **Alternative scheme for 1 – p(jam, jam)with replacement**<br>B0 for $\frac{8}{11}$ seen as non replacement<br>M2 for $1 - (\frac{8}{11} \times \frac{8}{11})$ or $1 - (\frac{64}{121})$<br>A0 for $\frac{57}{121}$<br>**Special cases**<br>S.C. Award B3 for an answer of $\frac{48}{110}$ obtained from taking exactly one jar of honey<br>S.C. Award B2 for $\frac{57}{121}$ or $\frac{54}{121}$ or $\frac{57}{110}$ or $1 - (\frac{8}{11} \times \frac{8}{11})$ or $\frac{65}{121}$ or $\frac{46}{110}$<br>S.C. Award B1 for $\frac{2}{11}$ and $\frac{8}{11}$ and $\frac{3}{11}$ or $\frac{3}{10}$ and $\frac{8}{10}$ and $\frac{3}{10}$ seen as 2nd probabilities<br>if B2 not scored. |



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Paper Reference(s)

**5381H/6A**

# Edexcel GCSE

## Mathematics (Modular) – 2381

Paper 6 – Section A (Calculator)

# Higher Tier



Unit 1 Test – Data Handling

Monday 21 June 2010 – Afternoon

Time for Section A: 20 minutes

Examiner's use only

| | | |
|---|---|---|
| | | |

Team Leader's use only

| | | |
|---|---|---|
| | | |

| Section | Leave Blank |
|---|---|
| A | |
| B | |

**Materials required for examination**
Ruler graduated in centimetres and millimetres, protractor, compasses, pen, HB pencil, eraser, calculator.
Tracing paper may be used.

**Items included with question papers**
Nil

### Instructions to Candidates

In the boxes above, write your centre number, candidate number, your surname, initials and signature.
Check that you have the correct question paper.
Answer ALL the questions. Write your answers in the spaces provided in this question paper.
If you need more space to complete your answer to any question, use additional answer sheets.

### Information for Candidates

The marks for individual questions and the parts of questions are shown in round brackets: e.g. **(2)**.
This section has 6 questions. The total mark for this section is 15. The total mark for this paper is 30.
There are 8 pages in this question paper. Any blank pages are indicated.
**Calculators may be used for Section A only.**
If your calculator does not have a π button, take the value of π to be 3.142 unless the question instructs otherwise.

### Advice to Candidates

Show all stages in any calculations.
Work steadily through the paper. Do not spend too long on one question.
If you cannot answer a question, leave it and attempt the next one.
Return at the end to those you have left out.

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**SECTION A**

**Answer ALL SIX questions.**

**Write your answers in the spaces provided.**

**You may use a calculator in this section.**

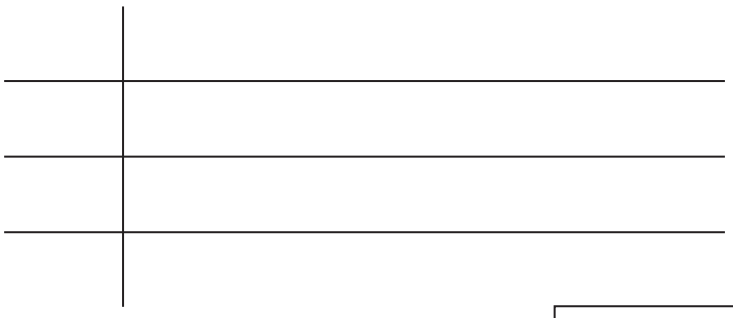
**You must write down all stages in your working.**

**1.** A gardener recorded the number of flower buds on each of 15 plants.

Here are her results.

| | | | | |
|---|---|---|---|---|
| 11 | 36 | 23 | 28 | 18 |
| 36 | 40 | 31 | 13 | 26 |
| 25 | 41 | 36 | 22 | 19 |

(a) Draw an ordered stem and leaf diagram for this information.
You must include a key.



Key:

**(3)**

(b) Write down the mode.

.....

**(1)** **Q1**

**(Total 4 marks)**



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Leave blank

**2.** There are 40 caravans in a holiday park.
The table gives information about the number of people in each caravan.

| Number of people | Frequency |
|---|---|
| 1 | 8 |
| 2 | 11 |
| 3 | 9 |
| 4 | 7 |
| 5 | 5 |

Work out the mean number of people in each caravan.

.....

**Q2**

**(Total 3 marks)**



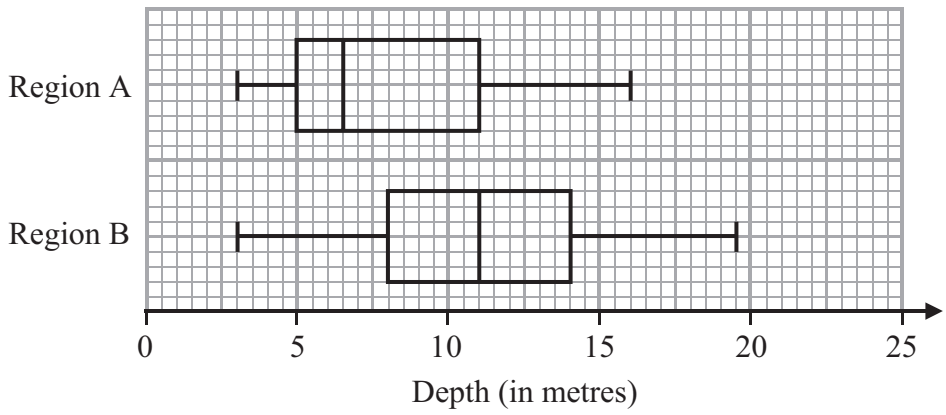
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**3.** The box plots show information about the depths of the craters in two regions of the moon.




Compare the distributions of the depths of the craters in region A and the depths of the craters in region B.

1 .....

.....

2 .....

.....

**Q3**

**(Total 2 marks)**

**4.** The table shows the number of vacuum cleaners sold by a shop in each of the first five months of 2010

| **Month** | January | February | March | April | May |
|---|---|---|---|---|---|
| **Number of vacuum cleaners sold** | 23 | 35 | 41 | 53 | 29 |

Work out the 3-month moving averages for this information.
The first one has been done for you.

33, ..... , .....

**Q4**

**(Total 2 marks)**



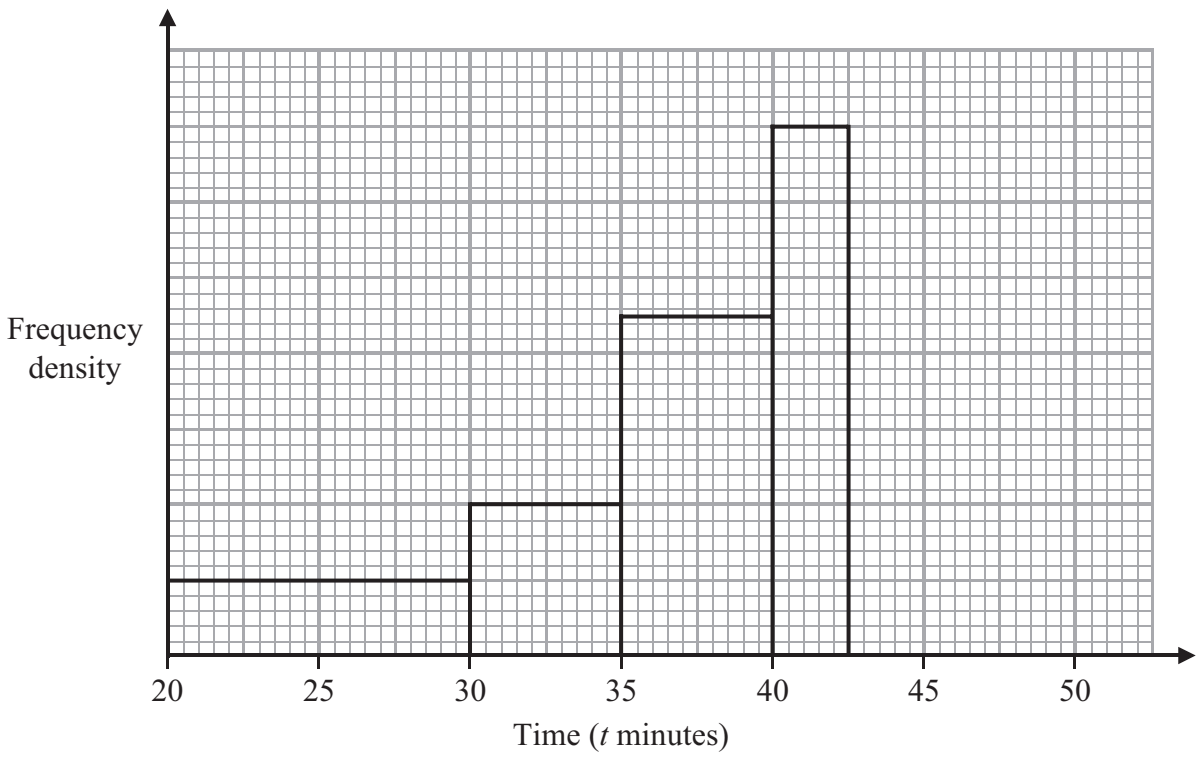
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**5.** The incomplete table and histogram show information about the time it took some people to travel to work.

| Time ($t$ minutes) | Frequency |
|---|---|
| $20 < t \leqslant 30$ | 20 |
| $30 < t \leqslant 35$ | |
| $35 < t \leqslant 40$ | 45 |
| $40 < t \leqslant 42.5$ | |
| $42.5 < t \leqslant 45$ | 25 |
| $45 < t \leqslant 50$ | 35 |




(a) Use the information in the histogram to complete the table.

**(1)**

(b) Use the information in the table to complete the histogram.

**(1)**

**Q5**

**(Total 2 marks)**



N 3 6 8 0 7 A 0 5 0 8



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Leave blank

**6.** The table gives some information about 290 students.

| Height ($h$ cm) | Male | Female |
|---|---|---|
| $140 \leqslant h < 150$ | 37 | 56 |
| $150 \leqslant h < 160$ | 39 | 49 |
| $160 \leqslant h < 170$ | 45 | 33 |
| $170 \leqslant h < 180$ | 18 | 13 |

Toby wants to do a survey of 50 of the students.
He uses a sample stratified by height and gender.

Work out the number of female students with a height less than 150 cm that he should have in his sample.

.....

**Q6**

**(Total 2 marks)**

**TOTAL FOR SECTION A: 15 MARKS**

**END**



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Paper Reference(s)

**5381H/6B**

# Edexcel GCSE

## Mathematics (Modular) – 2381

Paper 6 – Section B (Non-Calculator)

# Higher Tier



Unit 1 Test – Data Handling

Monday 21 June 2010 – Afternoon

Time for Section B: 20 minutes

| **Materials required for examination** | **Items included with question papers** |
|---|---|
| Ruler graduated in centimetres and millimetres, protractor, compasses, pen, HB pencil, eraser. Tracing paper may be used. | Nil |

Examiner's use only

| | | |
|---|---|---|
| | | |

Team Leader's use only

| | | |
|---|---|---|
| | | |

### Instructions to Candidates

In the boxes above, write your centre number, candidate number, your surname, initials and signature.
Check that you have the correct question paper.
Answer ALL the questions. Write your answers in the spaces provided in this question paper.
If you need more space to complete your answer to any question, use additional answer sheets.

### Information for Candidates

The marks for individual questions and the parts of questions are shown in round brackets: e.g. **(2)**.
This section has 5 questions. The total mark for this section is 15. The total mark for this paper is 30.
There are 8 pages in this question paper. Any blank pages are indicated.
**Calculators may be used for Section A only.**

### Advice to Candidates

Show all stages in any calculations.
Work steadily through the paper. Do not spend too long on one question.
If you cannot answer a question, leave it and attempt the next one.
Return at the end to those you have left out.

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## SECTION B

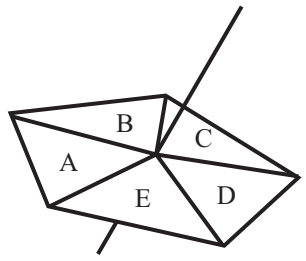
**Answer ALL FIVE questions.**

**Write your answers in the spaces provided.**

**You must NOT use a calculator in this section.**

**You must write down all stages in your working.**

**1.** Here is a five-sided spinner.
The sides of the spinner are labelled A, B, C, D and E.
The spinner is biased.




The table shows the probability that the spinner will land on A or B or C or E.

| **Letter** | A | B | C | D | E |
|---|---|---|---|---|---|
| **Probability** | 0.25 | 0.20 | 0.10 | | 0.30 |

(a) Work out the probability that the spinner will land on D.

.....

**(2)**

Tania is going to spin the spinner 100 times.

(b) Work out an estimate for the number of times the spinner will land on A.

.....

**(2)**

**Q1**

**(Total 4 marks)**

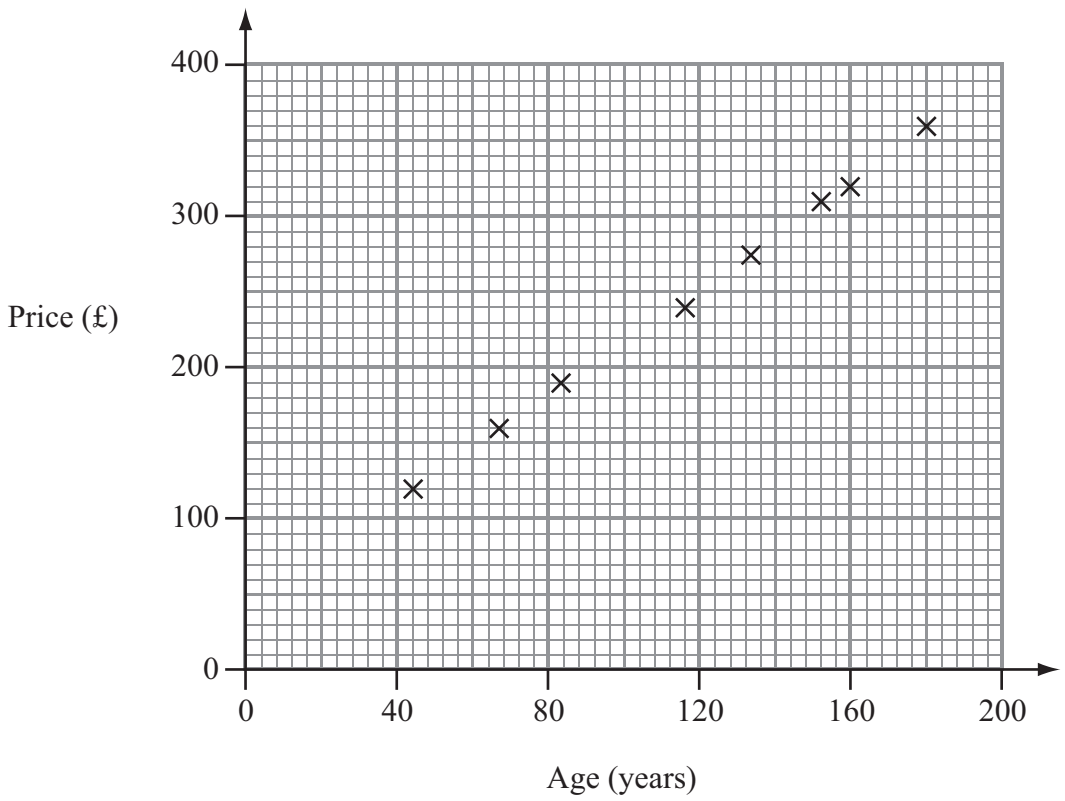


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**2.** A shop sells old maps.
The scatter graph shows information about the prices and ages of eight old maps sold at the shop.




(a) What type of correlation does the scatter graph show?

.....
**(1)**

Rob wants to buy an old map from this shop.
The map is 100 years old.

(b) Find an estimate for the price of this old map.

£ .....
**(1)**

**(Total 2 marks)**

**Q2**



N 3 6 8 0 8 A 0 3 0 8

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**3.** Rodrigo wants to collect information about the lengths of time people take eating their breakfast.

Design a suitable question he could use on a questionnaire.
You must include some response boxes.

**(Total 2 marks)**

Q3

**4**. The table shows information about the weights of 60 fish in a pond.

| Weight ($w$ kg) | Frequency |
|---|---|
| $0 < w \leqslant 0.5$ | 5 |
| $0.5 < w \leqslant 1$ | 12 |
| $1 < w \leqslant 1.5$ | 23 |
| $1.5 < w \leqslant 2$ | 16 |
| $2 < w \leqslant 2.5$ | 4 |

(a) Complete the cumulative frequency table for this information.

| Weight ($w$ kg) | Cumulative frequency |
|---|---|
| $0 < w \leqslant 0.5$ | 5 |
| $0 < w \leqslant 1$ | |
| $0 < w \leqslant 1.5$ | |
| $0 < w \leqslant 2$ | |
| $0 < w \leqslant 2.5$ | |

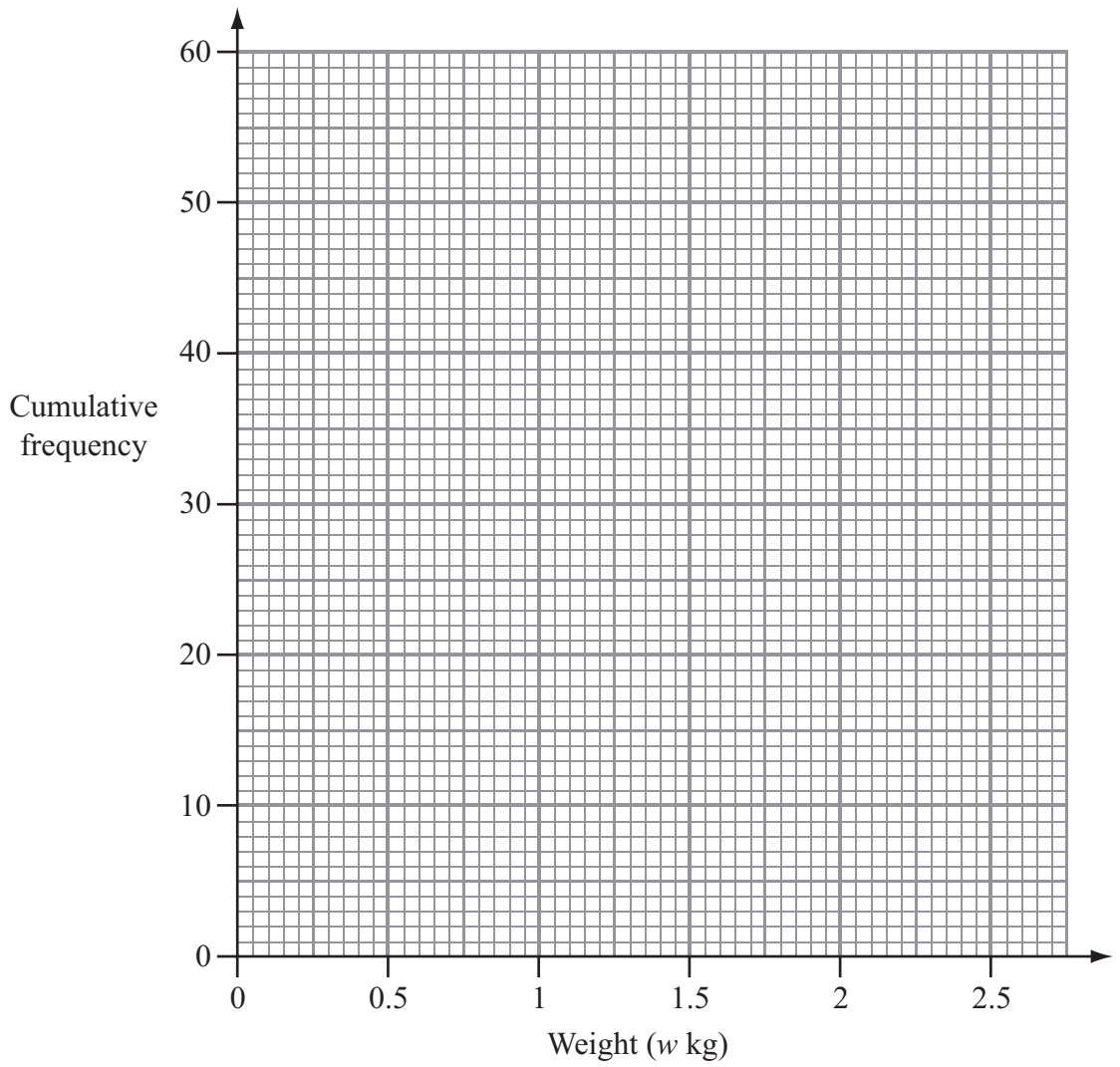
**(1)**



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(b) On the grid, draw a cumulative frequency graph for your table.

**(2)**

(c) Use your graph to find an estimate for the median weight.

..... kg

**(1)**

**Q4**

**(Total 4 marks)**





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**5.** There are seven counters in a bag.
5 counters are red.
2 counters are blue.

Toni takes at random a counter from the bag.
She does **not** put the counter back in the bag.
Toni then takes at random another counter from the bag.

Work out the probability that Toni takes two counters of the same colour.

.....

**(Total 3 marks)**

**Q5**

**TOTAL FOR SECTION B: 15 MARKS**
**TOTAL FOR PAPER: 30 MARKS**

**END**



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# Mark Scheme (Results)

## Summer 2010

GCSE

GCSE Mathematics (Modular) - 2381
Paper: 5381H/6A

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Summer 2010

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**5381H/6A**

| Question | Working | Answer | Mark | Notes |
|---|---|---|---|---|
| 1 (a) | | 1 \| 3 8 9<br>2 \| 2 3 5 6 8<br>3 \| 1 6 6 6<br>4 \| 0 1<br><br>Key: 1 \| 2 = 12 | 3 | B3 for fully correct diagram with key<br><br>(B2 for ordered leaves, with at most two errors or omissions **and** a valid stem and key<br>OR correct unordered leaves **and** a key<br>OR correct ordered leaves and a valid stem)<br><br>(B1 for unordered or ordered leaves, with one or two errors or omissions<br>OR key) |
| (b) | | 36 | 1 | B1 cao |
| 2 | $(8\times1+11\times2+9\times3+7\times4+5\times5)\div40$<br><br>$=8+22+27+28+25$<br><br>$=110\div40$ | 2.75 | 3 | M1 for $8\times1$ or $11\times2$ or $9\times3$ or $7\times4$ or $5\times5$ oe or 22, 27, 28, 25 seen or 110 seen<br><br>M1 dep for '$(8\times1+11\times2+9\times3+7\times4+5\times5)$'$\div40$<br><br>A1 for 2.75 or $2\frac{3}{4}$ |

**5381H/6A**

| Question | Working | Answer | Mark | Notes |
|---|---|---|---|---|
| 3 | <table><tr><th></th><th>A</th><th>B</th></tr><tr><td>Lowest</td><td>3</td><td>3</td></tr><tr><td>LQ</td><td>5</td><td>8</td></tr><tr><td>Median</td><td>6.5</td><td>11</td></tr><tr><td>UQ</td><td>11</td><td>14</td></tr><tr><td>Highest</td><td>16</td><td>19.5</td></tr><tr><td>Range</td><td>13</td><td>16.5</td></tr><tr><td>IQR</td><td>6</td><td>6</td></tr></table> | two comparisons | 2 | B1 for comparison of spread<br>e.g. range of depths in region B greater than range of depths in region A<br>e.g. interquartile ranges are equal<br><br>B1 for comparison of a specific value or a different comparison of spread<br>e.g. deepest crater in region B is deeper than the deepest crater in region A<br>e.g. median B greater than median A |
| 4 | $(35+41+53)\div 3=129\div 3$<br><br>$(41+53+29)\div 3=123\div 3$ | 43, 41 | 2 | M1 for $(35+41+53)\div 3$ or $(41+53+29)\div 3$ oe (may be implied by one correct answer)<br>A1 for both 43 and 41<br><br>**S.C.** Award B1 for 41, 43 |
| 5 (a) | | 20, 35 | 1 | B1 for both 20 and 35 |
| (b) | | complete histogram | 1 | B1 for a bar of correct width with height 5cm and a bar of correct width with height 3.5cm (tolerance ± 1 sq) |

| 5381H/6A | | | | |
|---|---|---|---|---|
| **Question** | **Working** | **Answer** | **Mark** | **Notes** |
| 6 | $\frac{56}{290}\times 50$ | 10 | 2 | M1 for $\frac{56}{290}\times 50$ oe or 9.6 ... or 9.7 seen<br>A1 for 9 or 10 |

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# Mark Scheme (Results)

## Summer 2010

GCSE

GCSE Mathematics (Modular) - 2381
Paper: 5381H/6B

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Summer 2010

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| 5381H/6B | | | | | |
|---|---|---|---|---|---|
| **Question** | | **Working** | **Answer** | **Mark** | **Notes** |
| 1 | (a) | $1-(0.25+0.20+0.10+0.30)$ | 0.15 | 2 | M1 for $1-(0.25+0.20+0.10+0.30)$ or 1 – 0.85 or 15 seen<br>A1 for 0.15 oe |
| | (b) | $0.25\times100$ | 25 | 2 | M1 for $0.25\times100$ or $100\div4$ oe<br>A1 cao |
| 2 | (a) | | positive | 1 | B1 for positive |
| | (b) | | 200 – 230 | 1 | B1 for 200 – 230 inclusive |
| 3 | | | question<br>+ response boxes | 2 | 1st aspect: one question<br>(e.g. how long does it take you to eat your breakfast?)<br>(ignore other questions)<br>2nd aspect: response list (at least 2), not overlapping<br>3rd aspect: some mention of units (e.g. minutes)<br>in either question or responses<br><br>B2 for all 3 aspects<br>(B1 for 1 or 2 aspects) |

| 5381H/6B | | | | |
|---|---|---|---|---|
| **Question** | **Working** | **Answer** | **Mark** | **Notes** |
| 4 (a) | | (5), 17, 40, 56, 60 | 1 | B1 for (5), 17, 40, 56, 60 |
| (b) | | cumulative frequency diagram | 2 | B2 f.t . for 'correct' cumulative frequency graph ± 1sq dep on table with at most 1 addition error provided no part has a negative gradient (accept points joined by curve or line segments)<br>(B1 for 4 or 5 'points' plotted at top of interval, dep on table with at most 1 addition error (need not be joined) ± 1 sq or 4 or 5 'points' plotted not at end but consistent within each interval and joined ± 1 sq) |
| (c) | | 1.20 – 1.35 | 1 | B1 for 1.20 – 1.35 inclusive or f.t. from their sensible cumulative frequency graph |

| 5381H/6B | | | | |
|---|---|---|---|---|
| **Question** | **Working** | **Answer** | **Mark** | **Notes** |
| 5 | $\frac{5}{7}\times\frac{4}{6}+\frac{2}{7}\times\frac{1}{6}=\frac{20}{42}+\frac{2}{42}$ | $\frac{22}{42}$ | 3 | M1 for $\frac{5}{7}\times\frac{4}{6}$ oe or $\frac{2}{7}\times\frac{1}{6}$ oe or a correct tree diagram with $\frac{5}{7},\frac{4}{6},\frac{2}{7}$ and $\frac{1}{6}$ in the correct places<br>M1 dep for $\frac{5}{7}\times\frac{4}{6}+\frac{2}{7}\times\frac{1}{6}$<br>A1 for $\frac{22}{42}$ oe<br>SC: B1 for $\frac{22}{49}$ or $\frac{29}{49}$ |

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| Candidate No. | | | | | | 5 | 3 | 8 | 1 | H | / | 6 | A | Signature | |

Paper Reference(s)

**5381H/6A**

# Edexcel GCSE

## Mathematics (Modular) – 2381

Paper 6 – Section A (Calculator)

# Higher Tier

Unit 1 Test – Data Handling

Tuesday 2 March 2010 – Morning

Time for Section A: 20 minutes

Examiner's use only

| | | |
|---|---|---|
| | | |

Team Leader's use only

| | | |
|---|---|---|
| | | |



| Section | Leave Blank |
|---|---|
| A | |
| B | |

**Materials required for examination**
Ruler graduated in centimetres and millimetres, protractor, compasses, pen, HB pencil, eraser, calculator. Tracing paper may be used.

**Items included with question papers**
Nil

### Instructions to Candidates

In the boxes above, write your centre number, candidate number, your surname, initials and signature.
Check that you have the correct question paper.
Answer ALL the questions. Write your answers in the spaces provided in this question paper.
If you need more space to complete your answer to any question, use additional answer sheets.

### Information for Candidates

The marks for individual questions and the parts of questions are shown in round brackets: e.g. **(2)**.
This section has 4 questions. The total mark for this section is 15. The total mark for this paper is 30.
There are 8 pages in this question paper. Any blank pages are indicated.
**Calculators may be used for Section A only.**
If your calculator does not have a π button, take the value of π to be 3.142 unless the question instructs otherwise.

### Advice to Candidates

Show all stages in any calculations.
Work steadily through the paper. Do not spend too long on one question.
If you cannot answer a question, leave it and attempt the next one.
Return at the end to those you have left out.

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**SECTION A**

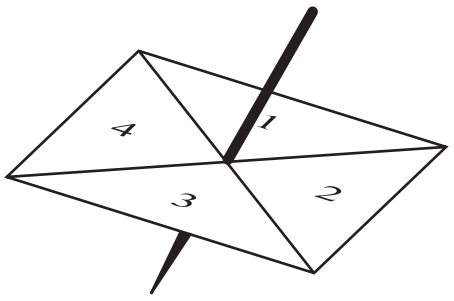
**Answer ALL FOUR questions.**

**Write your answers in the spaces provided.**

**You may use a calculator in this section.**

**You must write down all stages in your working.**

**1.** Here is a four-sided spinner.
The spinner is not fair.




The table shows each of the probabilities that the spinner will land on 1 or 2 or 3 or 4

| **Number** | 1 | 2 | 3 | 4 |
|---|---|---|---|---|
| **Probability** | 0.4 | 0.3 | 0.2 | 0.1 |

The spinner is spun once.

(a) Work out the probability that the spinner will land on 1 or 3

.....
**(2)**

Fiona will spin the spinner 200 times.

(b) Work out an estimate for the number of times the spinner will land on 2

.....
**(2)**

**(Total 4 marks)**

**Q1**



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**2.** The manager of a supermarket records the waiting times of 50 customers at a checkout.

The table shows information about her results.

| **Waiting time ($t$ seconds)** | **Frequency** | | |
|---|---|---|---|
| $0 \leqslant t < 60$ | 3 | | |
| $60 \leqslant t < 120$ | 7 | | |
| $120 \leqslant t < 180$ | 20 | | |
| $180 \leqslant t < 240$ | 15 | | |
| $240 \leqslant t < 300$ | 5 | | |

Work out an estimate for the mean.

..... seconds

**(Total 4 marks)**

**Q2**



N 3 6 2 9 0 A 0 3 0 8



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**3.** The table shows the number of people, in thousands, who went to a cinema in each of the years 2000 to 2007

It also shows some of the three-point moving averages for the data.

| Year | Number of people (thousands) | Three-point moving average (thousands) |
|---|---|---|
| 2000 | 10.1 | |
| 2001 | 15.3 | 15.0 |
| 2002 | 19.6 | 16.0 |
| 2003 | 13.1 | 17.3 |
| 2004 | 19.2 | 17.9 |
| 2005 | 21.4 | |
| 2006 | 16.1 | |
| 2007 | 21.3 | |

(a) Complete the table to show the two missing three-point moving averages.

**(2)**

(b) Use the moving averages to describe the trend.

.....

.....

**(1)**



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The table below shows some information about the ages of people going to a cinema one evening.

| Age group (years) | Number of people |
|---|---|
| 14 or under | 62 |
| 15 - 24 | 62 |
| 25 - 34 | 54 |
| 35 or over | 80 |

Saki carries out a survey of these people.

She uses a sample of 60 people stratified by age group.

(c) Calculate the number of people in her sample aged 35 years or over.

.....

**(2)** **Q3**

**(Total 5 marks)**



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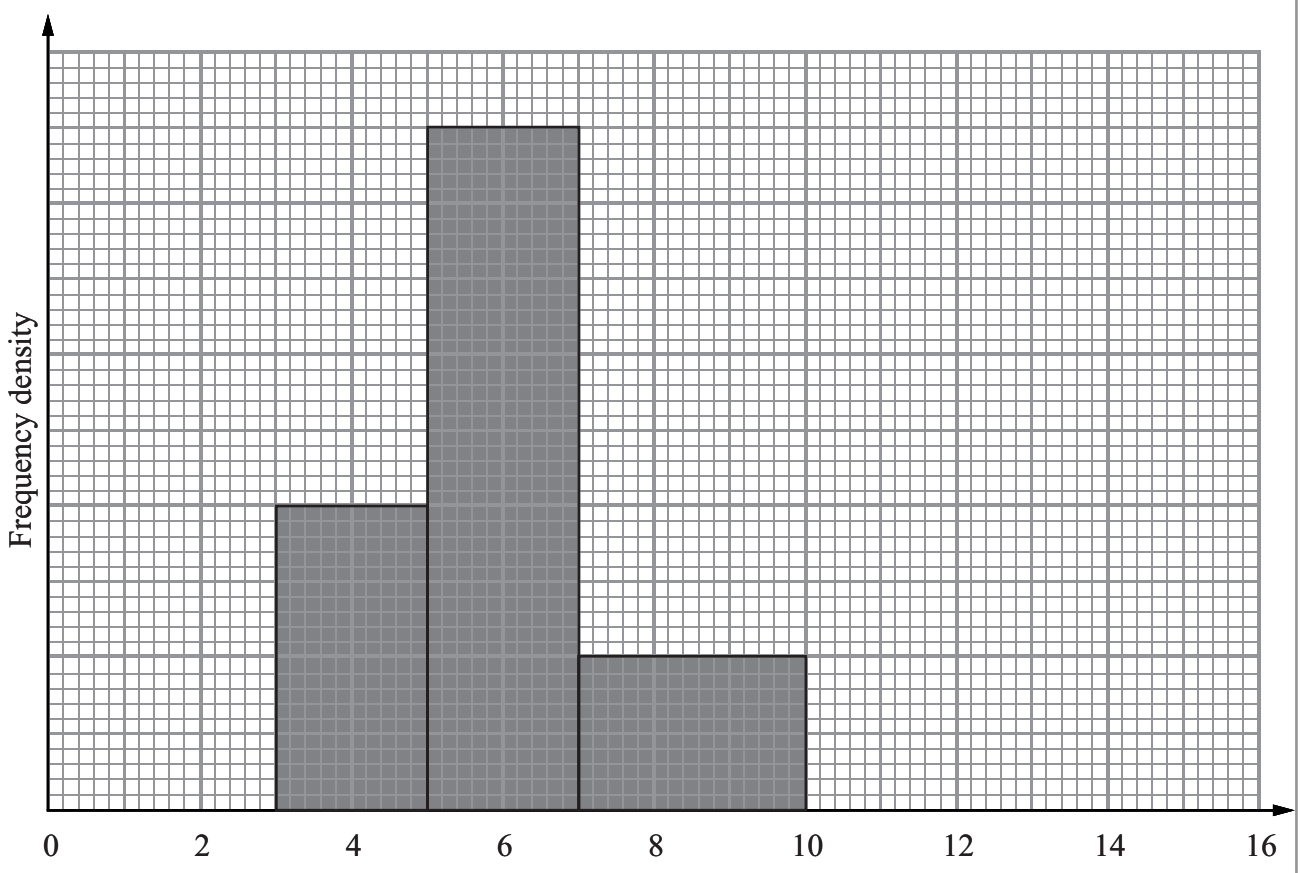
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**4.**

| **Distance travelled ($D$ km)** | **Frequency** |
|---|---|
| $0 < D \leqslant 3$ | 9 |
| $3 < D \leqslant 5$ | 16 |
| $5 < D \leqslant 7$ | 36 |
| $7 < D \leqslant 10$ | 12 |
| $10 < D \leqslant 15$ | 10 |

The table and incomplete histogram show some information about the distances travelled to college by some students.

Complete the histogram.




**Q4**

**(Total 2 marks)**

**TOTAL FOR SECTION A: 15 MARKS**

**END**



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| Centre No. | | | | | | Paper Reference | | | | | | | | Surname | Initial(s) |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
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Paper Reference(s)

**5381H/6B**

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# Edexcel GCSE

## Mathematics (Modular) – 2381

Paper 6 – Section B (Non-Calculator)

# Higher Tier



Unit 1 Test – Data Handling

Tuesday 2 March 2010 – Morning

Time for Section B: 20 minutes

**Materials required for examination**
Ruler graduated in centimetres and millimetres, protractor, compasses, pen, HB pencil, eraser.
Tracing paper may be used.

**Items included with question papers**
Nil

### Instructions to Candidates

In the boxes above, write your centre number, candidate number, your surname, initials and signature.
Check that you have the correct question paper.
Answer ALL the questions. Write your answers in the spaces provided in this question paper.
If you need more space to complete your answer to any question, use additional answer sheets.

### Information for Candidates

The marks for individual questions and the parts of questions are shown in round brackets: e.g. **(2)**.
This section has 5 questions. The total mark for this section is 15. The total mark for this paper is 30.
There are 12 pages in this question paper. Any blank pages are indicated.
**Calculators may be used for Section A only.**

### Advice to Candidates

Show all stages in any calculations.
Work steadily through the paper. Do not spend too long on one question.
If you cannot answer a question, leave it and attempt the next one.
Return at the end to those you have left out.

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## SECTION B

**Answer ALL FIVE questions.**

**Write your answers in the spaces provided.**

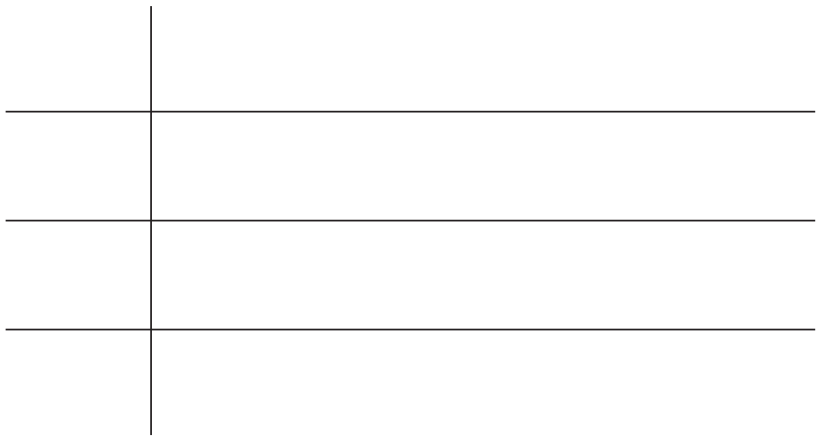
**You must NOT use a calculator in this section.**

**You must write down all stages in your working.**

**1.** Here are the heights, in cm, of 15 female students.

| | | | | |
|---|---|---|---|---|
| 146 | 176 | 163 | 151 | 158 |
| 169 | 152 | 167 | 158 | 164 |
| 170 | 147 | 172 | 155 | 154 |

Draw an ordered stem and leaf diagram to show this information.
You must include a key.



Key:

**Q1**

**(Total 3 marks)**



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**2.** Kizzy wants to find out how much money pupils spend in the school canteen.
She uses this question on a questionnaire.

How much money do you spend in the school canteen?

☐ Nothing ☐ Not much ☐ A lot

This is not a good question.

(a) Design a better question that Kizzy can use to find out how much money pupils spend in the school canteen.
You should include some response boxes.

**(2)**

Kizzy gives her questionnaire only to the pupils in her class.

(b) Give one possible reason why this may not be a good sample.
You must explain your answer.

.....

.....

**(1)**

**(Total 3 marks)**

**Q2**







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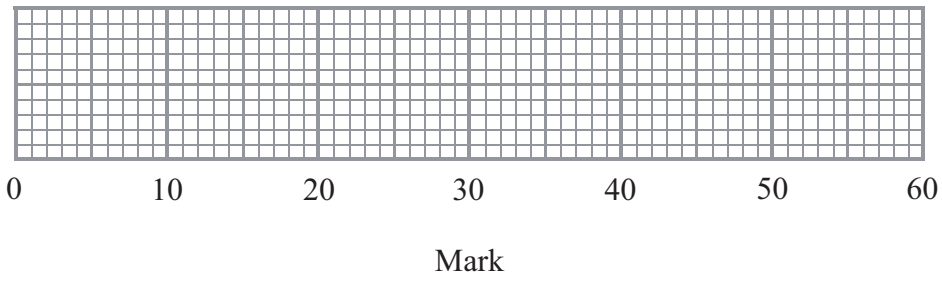
**3.** Mr Scott set a test for the students in his class.

He recorded the marks.

The lowest mark was 18
The highest mark was 54

The median mark was 36
The lower quartile was 30
The upper quartile was 46

On the grid, draw a box plot to show this information.




**Q3**

**(Total 2 marks)**



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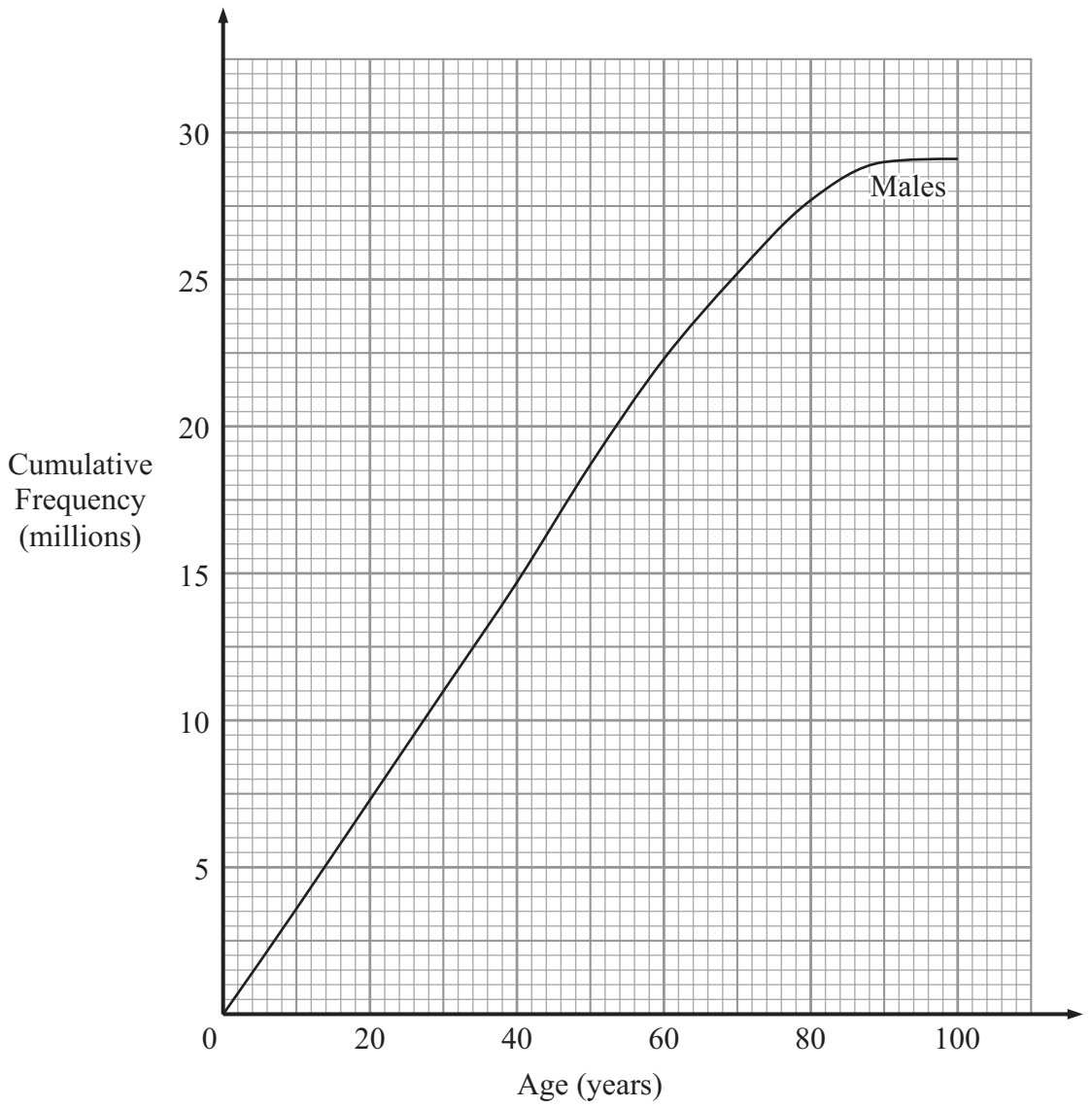


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**4.** The cumulative frequency diagram below shows some information about the ages of **males** in the UK in 2005




(a) Find an estimate for the number of these males who were aged 60 years or less.

..... millions

**(1)**

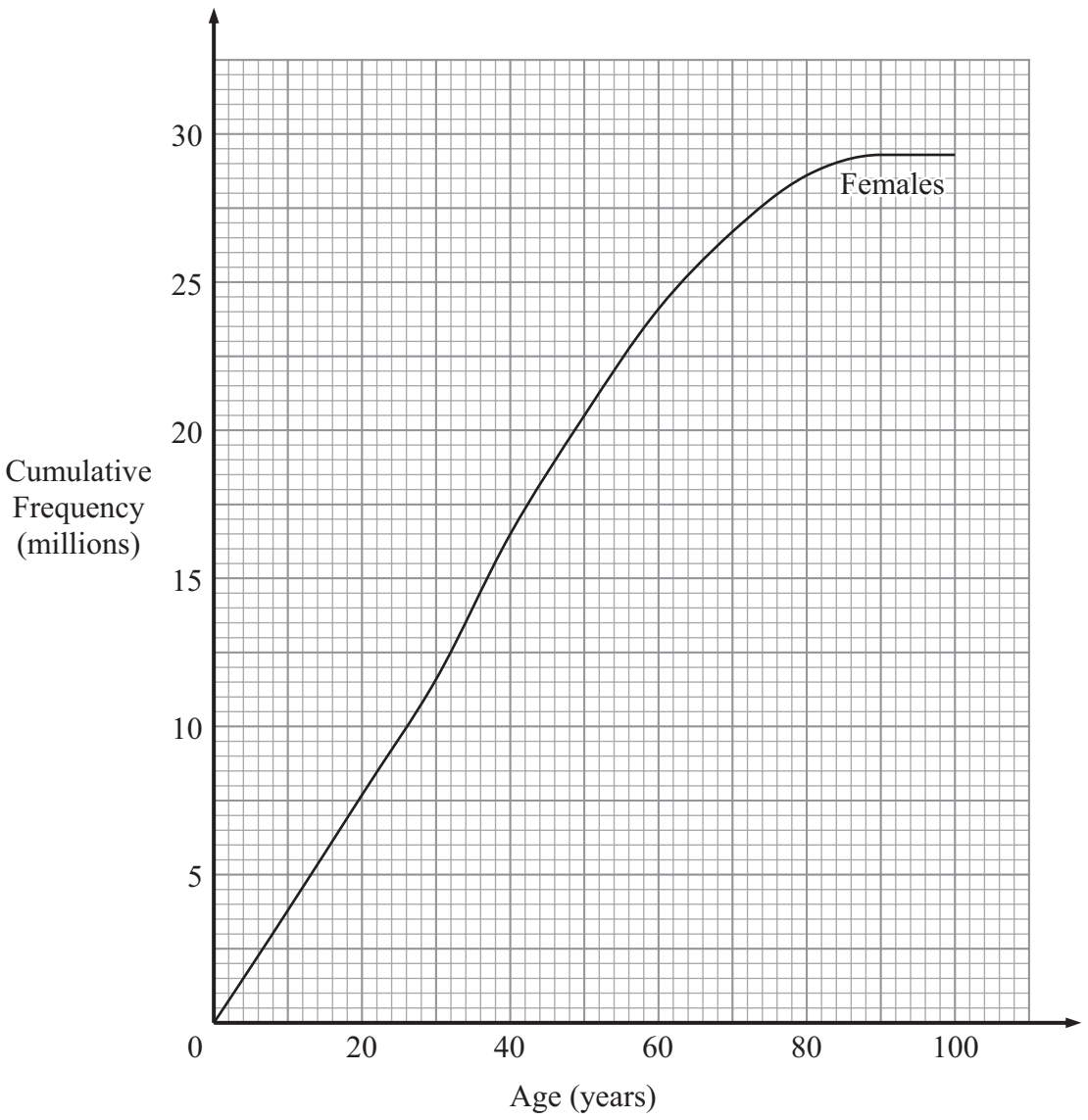


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The cumulative frequency diagram below shows some information about the ages of **females** in the UK in 2005




Delia says:
"There were more males than females aged 60 years or less in the UK in 2005"

(b) Is Delia correct?
Explain your answer.

.....

.....

.....

**(1)**

**(Total 2 marks)**

**Q4**



N 3 6 2 9 1 A 0 7 1 2

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**5.** Tom plants 3 seeds.

The probability that a seed will germinate is $\frac{4}{5}$

(a) Calculate the probability that all 3 seeds will germinate.

.....

**(2)**



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(b) Calculate the probability that at least one of the seeds will germinate.

Leave blank

.....

**(3)** **Q5**

**(Total 5 marks)**

**TOTAL FOR SECTION B: 15 MARKS**

**TOTAL FOR PAPER: 30 MARKS**

**END**



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# Mark Scheme (Results)

## March 2010

GCSE

GCSE Mathematics (Modular) - 2381
Paper: 5381H/6A

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March 2010

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| 5381H/6A | | | | |
|---|---|---|---|---|
| **Question** | **Working** | **Answer** | **Mark** | **Notes** |
| 1 (a) | 0.4 + 0.2 | 0.6 | 2 | M1 for 0.4 + 0.2 or 1 – (0.3 + 0.1) oe<br>A1 for 0.6 oe<br>NB: 0.4+0.2 followed by further incorrect work gets 0 marks. |
| (b) | 200 × 0.3 | 60 | 2 | M1 for 200 × 0.3<br>A1 cao |
| 2 | 3×30=90 3×29.5=88.5<br>7×90=630 7×89.5=626.5<br>20×150=3000 20×149.5=2990<br>15×210=3150 15×209.5=3142.5<br>5×270=1350 5×269.5=1347.5<br><br>8220 ÷ 50 8195÷50 | 163.9 – 164.4 | 4 | M1 for use of $fx$ with $x$ consistent within intervals (including end points). Allow two slips even if outside interval.<br>M1 (dep) for use of midpoints. Allow one miscalculation as long as the overall intention is clear.<br>M1 (dep on 1st M1) for use of $\Sigma fx/50$ or $\Sigma fx/\Sigma f$<br>A1 163.9 – 164.4<br>NB: do not award the marks for $fx$ calculations if they are subsequently replaced by an alternative method, which is used. |



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| 5381H/6A | | | | | |
|---|---|---|---|---|---|
| **Question** | | **Working** | **Answer** | **Mark** | **Notes** |
| 3 | (a) | (19.2 + 21.4 + 16.1) ÷ 3<br>(21.4 + 16.1 + 21.3) ÷ 3 | 18.9,<br>19.6 | 2 | M1 for (19.2 + 21.4 + 16.1) ÷ 3 or 56.7 ÷ 3<br>or (21.4 + 16.1 + 21.3) ÷ 3 or 58.8 ÷ 3 (condone missing brackets) or sight of 18.9 or 19.6<br>A1 cao |
| | (b) | | Increasing | 1 | B1 for increasing / going up, or ft. |
| | (c) | $\frac{80}{258} \times 60$ | 19 | 2 | M1 for $\frac{80}{258} \times 60$ oe or 18.6 (046…) seen<br>A1 for fully correct answer (accept 18 or 19) |
| 4 | | | Bars drawn of height 1.5 cm and 1cm | 2 | M1 for identifying 1cm² as a frequency of 2 (may be implied by one correct bar) or one correct frequency density.<br>A1 for fully correct answer. |

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# Mark Scheme (Results)

## March 2010

GCSE

## GCSE Mathematics (Modular) - 2381
## Paper: 5381H/6B

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March 2010

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| 5381H/6B | | | | |
|---|---|---|---|---|
| **Question** | **Working** | **Answer** | **Mark** | **Notes** |
| 1 | | 14 \| 6 7<br>15 \| 1 2 4 5 8 8<br>16 \| 3 4 7 9<br>17 \| 0 2 6<br><br>Key: 14 \| 6 means 146 | 3 | M1 for unordered stem and leaf diagram (condone 2 errors, 1 number misplaced counts as 1 error; an omission is 1 error).<br>Note: ignore commas; accept inconsistent/absent spacing<br>A1 for correctly ordered and fully correct diagram<br>B1 for key e.g. 14 \| 6 means 146; 14 \| 6 = 146; accept 140 \| 6 etc if consistent with the table; units not necessary.<br>NB: if 1 \| 46 , etc used, mark as above and penalise one mark.<br>If an ordered and unordered diagram are presented mark the ordered. |
| 2 (a) | | Question with response boxes. | 2 | B2 for suitable question with time frame, and for at least 3 non-overlapping response boxes; need not be exhaustive.<br>(B1 for a suitable question with time frame, OR at least 3 non-overlapping response boxes; need not be exhaustive).<br>NB: Ignore units. |
| (b) | | Valid reason | 1 | B1 for valid reason eg not all ages covered. |



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| 5381H/6B | | | | |
|---|---|---|---|---|
| **Question** | **Working** | **Answer** | **Mark** | **Notes** |
| 3 | | Completed box plot | 2 | B2 for completely correct diagram; accept whisker line through box.<br>(B1 for at least one of these aspects:<br>box drawn from 30 to 46, OR any box with median line at 36, OR whiskers drawn from 18 to 54 from a box, termination taken at the end of the line and not necessarily with a line or a point marked).<br>NB: tolerance ±1/2 square (see overlay)<br>NB: box edges may be defined by the edge of the grid. |
| 4 (a) | | 22.25 | 1 | B1 for answer in range 22 – 22.5 (million) inclusive oe. |
| (b) | | "No" with reason | 1 | B1 for statement that Delia is not correct and use of value in range 23.5 – 24.5 (million) oe for women (eg states an acceptable difference between males and females); the statement for Delia is ft: eg if (a) > (b) the candidate needs to state that Delia is correct. |



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| 5381H/6B | | | | |
|---|---|---|---|---|
| **Question** | **Working** | **Answer** | **Mark** | **Notes** |
| 5 (a) | $\frac{4}{5} \times \frac{4}{5} \times \frac{4}{5}$ | $\frac{64}{125}$ | 2 | M1 for $\frac{4}{5} \times \frac{4}{5} \times \frac{4}{5}$<br>A1 for $\frac{64}{125}$ , 0.512, 51.2% oe |
| (b) | $(\frac{4}{5} \times \frac{4}{5} \times \frac{4}{5}) + (\frac{1}{5} \times \frac{4}{5} \times \frac{4}{5}) + (\frac{4}{5} \times \frac{1}{5} \times \frac{4}{5}) + (\frac{4}{5} \times \frac{4}{5} \times \frac{1}{5}) + (\frac{1}{5} \times \frac{1}{5} \times \frac{4}{5}) + (\frac{1}{5} \times \frac{4}{5} \times \frac{1}{5}) + (\frac{4}{5} \times \frac{1}{5} \times \frac{1}{5})$<br>OR<br>$1 - (\frac{1}{5} \times \frac{1}{5} \times \frac{1}{5})$ | $\frac{124}{125}$ | 3 | M2 for complete method<br>(M1 for at least one correct product or an evaluation of them)<br>A1 for $\frac{124}{125}$ , 0.992 oe<br>OR<br>M2 for complete method<br>(M1 for either $\frac{1}{5} \times \frac{1}{5} \times \frac{1}{5}$ or 1 – P(no seeds germinate))<br>A1 for $\frac{124}{125}$ , 0.992 oe<br>NB: for both parts ignore subsequent working where candidates take an otherwise correct answer and attempt to cancel it (incorrectly). |



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Paper Reference(s)

**5381H/6A**

# Edexcel GCSE

## Mathematics (Modular) – 2381

Paper 6 – Section A (Calculator)

# Higher Tier

Unit 1 Test – Data Handling

Friday 13 November 2009 – Morning

Time for Section A: 20 minutes



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|---|---|---|
| | | |

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| Section | Leave Blank |
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| A | |
| B | |

**Materials required for examination**
Ruler graduated in centimetres and millimetres, protractor, compasses, pen, HB pencil, eraser, calculator.
Tracing paper may be used.

**Items included with question papers**
Nil

## Instructions to Candidates

In the boxes above, write your centre number, candidate number, your surname, initials and signature. Check that you have the correct question paper.
Answer ALL the questions. Write your answers in the spaces provided in this question paper.
If you need more space to complete your answer to any question, use additional answer sheets.

## Information for Candidates

The marks for individual questions and the parts of questions are shown in round brackets: e.g. **(2)**.
This section has 4 questions. The total mark for this section is 15. The total mark for this paper is 30.
There are 8 pages in this question paper. Any blank pages are indicated.
**Calculators may be used for Section A only.**
If your calculator does not have a π button, take the value of π to be 3.142 unless the question instructs otherwise.

## Advice to Candidates

Show all stages in any calculations.
Work steadily through the paper. Do not spend too long on one question.
If you cannot answer a question, leave it and attempt the next one.
Return at the end to those you have left out.

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## SECTION A

**Answer ALL FOUR questions.**

**Write your answers in the spaces provided.**

**You must write down all stages in your working.**

**You may use a calculator in this section.**

**1.** The ages, in years, of the 21 players in a squash club are given below.

| | | | | | | |
|---|---|---|---|---|---|---|
| 16 | 17 | 20 | 20 | 20 | 21 | 22 |
| 35 | 33 | 32 | 29 | 25 | 27 | 30 |
| 54 | 37 | 38 | 40 | 48 | 40 | 45 |

(a) Show this information in an ordered stem and leaf diagram.
You must include a key.

**(3)**

(b) Find the median age.

..... years

**(1)**

**Q1**

**(Total 4 marks)**



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**2.** The table shows some information about the lengths, in minutes, of 40 films.

| Time, $T$, in minutes | Frequency | |
|---|---|---|
| $60 \leqslant T < 80$ | 8 | |
| $80 \leqslant T < 100$ | 12 | |
| $100 \leqslant T < 120$ | 6 | |
| $120 \leqslant T < 140$ | 14 | |

One of the films is selected at random.

(a) Find the probability that the length of the film is at least 120 minutes.

.....

**(1)**

The lengths of 8 of the films were from 60 to 80 minutes.
560 minutes is a sensible estimate for the total length of these 8 films.

(b) Explain why.

.....

.....

.....

**(1)**

(c) Calculate an estimate of the mean length of a film.

..... minutes

**(3)**

**Q2**

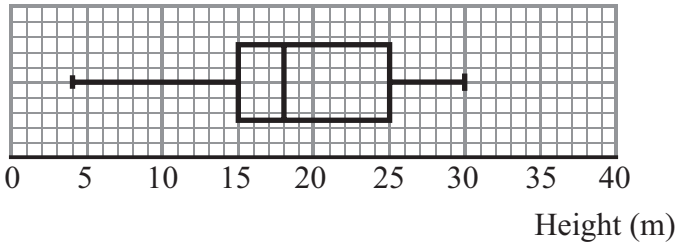
**(Total 5 marks)**



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**3.** The box plot gives information about the heights, in metres, of some trees.




(a) Write down the smallest height.

..... m
**(1)**

(b) Find the range.

..... m
**(1)**

Fred says that exactly 50% of the trees have heights between 15 m and 30 m.

(c) Is Fred correct?

.....

You must give a reason.

.....

.....

**(1)**

**Q3**

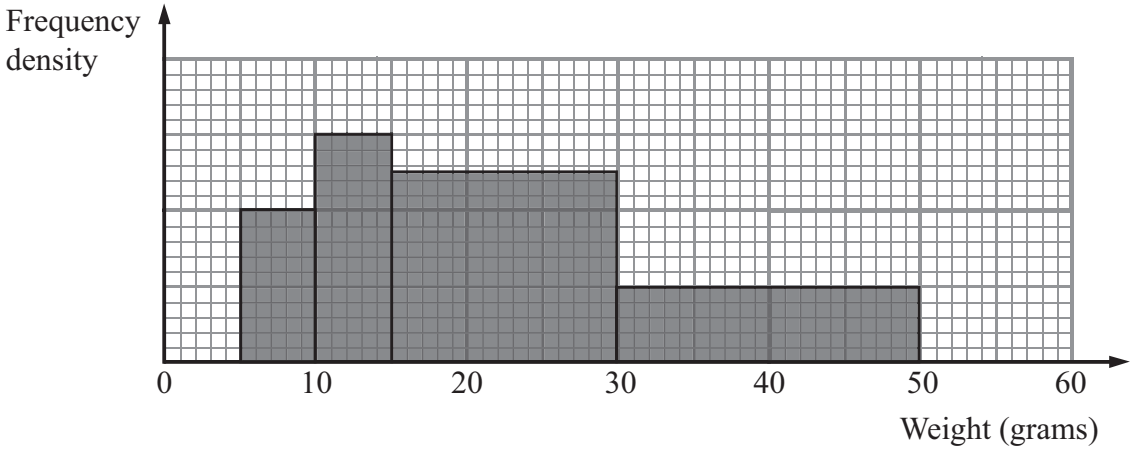
**(Total 3 marks)**



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**4.** The histogram gives information about the weights of birds in a survey.




There were 8 birds with weights between 5 grams and 10 grams.

Work out the total number of birds in the survey.

.....

**Q4**

**(Total 3 marks)**

**TOTAL FOR SECTION A: 15 MARKS**

**END**



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Team Leader's use only

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|---|---|---|
| | | |

# Edexcel GCSE

## Mathematics (Modular) – 2381

Paper 6 – Section B (Non-Calculator)

# Higher Tier



Unit 1 Test – Data Handling

Friday 13 November 2009 – Morning

Time for Section B: 20 minutes

**Materials required for examination**
Ruler graduated in centimetres and millimetres, protractor, compasses, pen, HB pencil, eraser.
Tracing paper may be used.

**Items included with question papers**
Nil

### Instructions to Candidates

In the boxes above, write your centre number, candidate number, your surname, initials and signature.
Check that you have the correct question paper.
Answer ALL the questions. Write your answers in the spaces provided in this question paper.
If you need more space to complete your answer to any question, use additional answer sheets.

### Information for Candidates

The marks for individual questions and the parts of questions are shown in round brackets: e.g. **(2)**.
This section has 5 questions. The total mark for this section is 15. The total mark for this paper is 30.
There are 8 pages in this question paper. Any blank pages are indicated.
**Calculators may be used for Section A only.**

### Advice to Candidates

Show all stages in any calculations.
Work steadily through the paper. Do not spend too long on one question.
If you cannot answer a question, leave it and attempt the next one.
Return at the end to those you have left out.

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## SECTION B

**Answer ALL FIVE questions.**

**Write your answers in the spaces provided.**

**You must write down all stages in your working.**

**You must NOT use a calculator in this section.**

**1.** Katya wants to find out information about the numbers of men, women, boys and girls using a sports hall.

Design a suitable data collection sheet to collect the information.

**Q1**

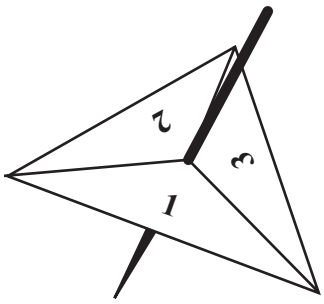
**(Total 2 marks)**



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**2.**




The diagram shows a fair spinner.
The spinner can land on 1 or 2 or 3

Jim spins the spinner twice.

(a) List the possible outcomes.
One of the outcomes has been done for you.

(1,1) .....

**(2)**

Claire spins the spinner twice.
The total score is the sum of the numbers it lands on.

The probability that the total score will be 4 is $\frac{1}{3}$

(b) Explain why.

.....

.....

.....

**(2)**

**Q2**

**(Total 4 marks)**



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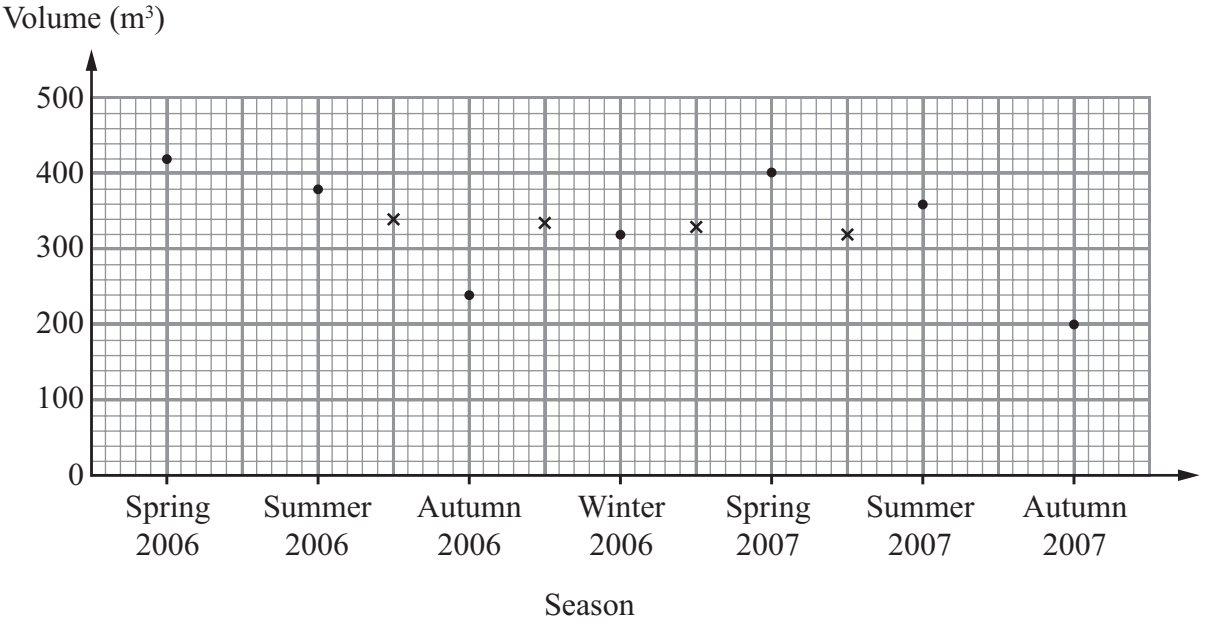
**3.** The table gives information about the volumes of rain in $m^3$ falling on a field in each of 7 seasons.

| Season | Volume ($m^3$) |
|---|---|
| Spring 2006 | 420 |
| Summer 2006 | 380 |
| Autumn 2006 | 240 |
| Winter 2006 | 320 |
| Spring 2007 | 400 |
| Summer 2007 | 360 |
| Autumn 2007 | 200 |

(a) Show, by calculation, that the first 4-point moving average is 340 $m^3$.

**(1)**

The graph shows the volumes of rain falling on the field and the 4-point moving averages.




Key: • volumes of rain each season
× 4-point moving average

(b) Draw a trend line on the graph.

**(1)**



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(c) Describe the trend.

.....

.....

**(1)**

(d) Describe the seasonality in the volumes of rain falling on the field.

.....

.....

**(1)**

**Q3**

**(Total 4 marks)**

**4.** Zahra is going to carry out a survey of 100 pictures in a newspaper.
The table shows the number of pictures in each of 3 sections of the newspaper.

| Section | Number |
|---|---|
| Sport | 40 |
| Business | 22 |
| Entertainment | 38 |
| Total | 100 |

Zahra decides to use a sample of 30 pictures stratified by section.

Work out the number of pictures from the sports section she should have in the sample.

.....

**Q4**

**(Total 2 marks)**



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**5.** Fred has a biased coin.

The probability of getting Heads on one throw of the coin is $\frac{3}{4}$

He throws the biased coin 3 times.

Work out the probability that he gets at least two Heads.

.....

**Q5**

**(Total 3 marks)**

**TOTAL FOR SECTION B: 15 MARKS**
**TOTAL FOR PAPER: 30 MARKS**

**END**



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# Mark Scheme (Results)

## November 2009

GCSE

## GCSE Mathematics (Modular) - 2381
## Paper: 5381H/6A

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November 2009

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| 5381H/6A | | | | |
|---|---|---|---|---|
| **Question** | **Working** | **Answer** | **Mark** | **Notes** |
| 1 (a) | 1 \| 6 7<br>2 \| 0 0 0 1 2 5 7 9<br>3 \| 5 3 2 0 7 8<br>4 \| 0 8 0 5<br>5 \| 4 | 1 \| 67<br>2 \| 00012579<br>3 \| 023578<br>4 \| 0058<br>5 \| 4<br><br>Key 5 \| 4 represents 54 (years) | 3 | B2 for a correct ordered diagram<br>[B1 for an unordered diagram allowing 1 error/omission<br>OR for an ordered diagram **with** 1 error or omission]<br>Note: 1 error can look like 2 in the diagram when one value is misplaced<br><br>B1 (indep) for a correct key |
| (b) | | 30 years | 1 | B1 for 30 or ft an ordered diagram in (a)<br>Note: If their stem & leaf diagram contains other than 21 data points, the selection of the 11th entry must be fully explained in terms of, for example $\left(\frac{21+1}{2}\right)=11$ |
| 2 (a) | | $\frac{14}{40}$ | 1 | B1 for $\frac{14}{40}$ seen [oe. including $\frac{7}{20}$, 0.35, 35%]<br>Do not penalize any incorrect cancelling or converting<br>[Note: the $\frac{14}{40}$ seen must not be contradicted by sight also of $\frac{8}{40}$ and/or $\frac{12}{40}$ and/or $\frac{6}{40}$ In such cases award B0] |
| (b) | 8 × 70 = 560<br>OR 8 × 60 = 480 and 8 × 80 = 640 and mid-interval found | The mid-interval value 70 multiplied by the frequency 8 gives 560 oe eg. 8 × 70 = 560 | 1 | B1 for correct explanation<br>Accept 8 × 70 (= 560) |



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| 5381H/6A | | | | | |
|---|---|---|---|---|---|
| **Question** | | **Working** | **Answer** | **Mark** | **Notes** |
| | (c) | $8\times70+12\times90+6\times110$<br>$+14\times130=4120$<br><br>'4120'÷"40" =103 | 103 | 3 | M1 for *fx*, *x* used consistently in the interval (accept the use of the upper limits). Allow 1 slip<br>[This maybe implied by sight of 3 or 4 correct values from 560, 1080, 660 and 1820<br>Note: If there is no working after this, M1 can still be awarded]<br>M1 (dep) for $\frac{\Sigma f\ "x"}{"\Sigma f"}$<br>"Σ*f*" must be seen to be the sum of 8, 12, 6 and 14]<br>A1 cao |
| 3 | (a) | | 4 | 1 | B1 cao |
| | (b) | | 26 | 1 | B1 cao |
| | (c) | No, because 75% lie between 15 and 30m<br>OR<br>50% lie between 15m and 25m | Reason | 1 | B1 for an acceptable reason |
| 4 | | $8\times1+12\times1+10\times3+4\times4$ | 66 | 3 | M1 for use of frequency density (eg sight of 1.6 on fd axis or 8 ÷ 5)<br>OR counting squares (eg. 1 cm square = 4 or 25 squares = 4 or sight of 16.5 or 412.5)<br>A1 any 3 (from 4) correct frequencies from 8, 12, 30 and 16<br>A1 cao<br>[SC: B1 for any correct extra frequency value found/seen if M0 scored] |



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# Mark Scheme (Results)

## November 2009

GCSE

GCSE Mathematics (Modular) - 2381
Paper: 5381H/6B

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<table>
<tr><th colspan="5">5381H/6B</th></tr>
<tr><th>Question</th><th>Working</th><th>Answer</th><th>Mark</th><th>Notes</th></tr>
<tr><td>1</td><td><table><tr><td></td><td>Tally</td><td>Frequency</td></tr><tr><td>Girls</td><td></td><td></td></tr><tr><td>Boys</td><td></td><td></td></tr><tr><td>Men</td><td></td><td></td></tr><tr><td>Women</td><td></td><td></td></tr></table></td><td>Data collection sheet</td><td>2</td><td>M1 for a chart quoting all 4 cases (men, women, boys, girls) with spaces in which tally marks or equivalent could be recorded.<br>[Do not accept - graphs unless it is clear how it is to be used to collect data.<br>- questions from a questionnaire]<br><br>A1 for an indication of tallying (oe), either by example or heading AND a column or indication of frequency (totalling)<br>Ignore extra information that may be given on the collection sheet.<br>[SC: B1 for a tally column and a frequency column if M0 scored]<br>Note: Use of the 3 cases; ‘men’, ‘women’, ‘boys & girls’ is acceptable throughout</td></tr>
<tr><td>2 (a)</td><td></td><td>(1,1)(1,2)<br>(1,3)(2,1)<br>(2,2)(2,3)<br>(3,1)(3,2)<br>(3,3)</td><td>2</td><td>M1 at least 6 outcomes, including the (1, 1) given. [ignore repeated outcomes]<br>A1 all correct</td></tr>
<tr><td>(b)</td><td></td><td>There are 3 outcomes whose sum is 4; (1,3), (2,2)and (3,1)<br>so $\frac{3}{9}=\frac{1}{3}$</td><td>2</td><td>M1 for stating that there are 3 cases whose sum is 4<br>A1 for sight of $\frac{3}{9}=\frac{1}{3}$</td></tr>
</table>



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| 5381H/6B | | | | |
|---|---|---|---|---|
| **Question** | **Working** | **Answer** | **Mark** | **Notes** |
| 3 (a) | $\frac{420+380+240+320}{4}$ | Complete and correct calculation | 1 | B1 for $\frac{420+380+240+320}{4}$ oe (= 340) |
| (b) | | Trend line | 1 | B1 for trend line drawn passing through at least two moving average points.<br>[Note: If more than one graph drawn, treat as choice and award B0 unless the correct trend line is labelled] |
| (c) | | Falling rainfall | 1 | B1 for decrease (in rainfall), downward trend , oe,<br>[Note: **negative** trend /correlation gets no marks]<br>Allow an answer of 'constant' rainfall, oe if answer to part (b) is a horizontal line passing through at least one moving average point. |
| (d) | | High in spring, less in summer and/or in autumn | 1 | B1 oe<br>[Note: Explanation must relate to a comparison of rainfall during the seasons and not to the positions of the plotted points. At least two different seasons must be quoted] |
| 4 | $\frac{40}{100}\times 30 = 12$ | 12 | 2 | M1 $\frac{40}{100}\times 30$ oe<br>A1 cao |



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| 5381H/6B | | | | |
|---|---|---|---|---|
| **Question** | **Working** | **Answer** | **Mark** | **Notes** |
| 5 | $1-\left(\frac{1}{4}\right)^3-3\times\left(\frac{3}{4}\right)\times\left(\frac{1}{4}\right)^2$<br>**or**<br>$3\times\left(\frac{3}{4}\right)^2\times\left(\frac{1}{4}\right)+\left(\frac{3}{4}\right)^3$ | $\frac{54}{64}$ | 3 | M1 $1-\left(\frac{1}{4}\right)^3-a\times\left(\frac{3}{4}\right)\times\left(\frac{1}{4}\right)^2$<br>M1 $1-\left(\frac{1}{4}\right)^3-3\times\left(\frac{3}{4}\right)\times\left(\frac{1}{4}\right)^2$<br>A1 $\frac{54}{64}$<br>**or**<br>M1 $a\times\left(\frac{3}{4}\right)^2\times\left(\frac{1}{4}\right)^1+b\times\left(\frac{3}{4}\right)^3$ , allow *a* or *b* to be zero<br>M1 $3\times\left(\frac{3}{4}\right)^2\times\left(\frac{1}{4}\right)^1+\left(\frac{3}{4}\right)^3$<br>A1 $\frac{54}{64}$ |



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Paper Reference(s)

**5381H/6A**

# Edexcel GCSE

## Mathematics (Modular) – 2381

Paper 6 – Section A (Calculator)

# Higher Tier



Unit 1 Test – Data Handling

Thursday 11 June 2009 – Morning

Time for Section A: 20 minutes

Examiner's use only

| | | |
|---|---|---|
| | | |

Team Leader's use only

| | | |
|---|---|---|
| | | |

| Section | Leave Blank |
|---|---|
| A | |
| B | |

**Materials required for examination**
Ruler graduated in centimetres and millimetres, protractor, compasses, pen, HB pencil, eraser, calculator.
Tracing paper may be used.

**Items included with question papers**
Nil

### Instructions to Candidates

In the boxes above, write your centre number, candidate number, your surname, initials and signature.
Check that you have the correct question paper.
Answer ALL the questions. Write your answers in the spaces provided in this question paper.
If you need more space to complete your answer to any question, use additional answer sheets.

### Information for Candidates

The marks for individual questions and the parts of questions are shown in round brackets: e.g. **(2)**.
This section has 4 questions. The total mark for this section is 15. The total mark for this paper is 30.
There are 8 pages in this question paper. Any blank pages are indicated.
**Calculators may be used for Section A only.**
If your calculator does not have a π button, take the value of π to be 3.142 unless the question instructs otherwise.

### Advice to Candidates

Show all stages in any calculations.
Work steadily through the paper. Do not spend too long on one question.
If you cannot answer a question, leave it and attempt the next one.
Return at the end to those you have left out.

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**SECTION A**

**Answer ALL FOUR questions.**

**Write your answers in the spaces provided.**

**You may use a calculator in this section.**

**You must write down all stages in your working.**

**1.** Zach has 10 CDs.
The table gives some information about the number of tracks on each CD.

| Number of tracks | Frequency | |
|---|---|---|
| 11 | 1 | |
| 12 | 3 | |
| 13 | 0 | |
| 14 | 2 | |
| 15 | 4 | |

Work out the mean.

.....

**(Total 3 marks)**

**Q1**



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**2.** This coloured wheel spins round.
The sectors are coloured yellow, red, green and blue.

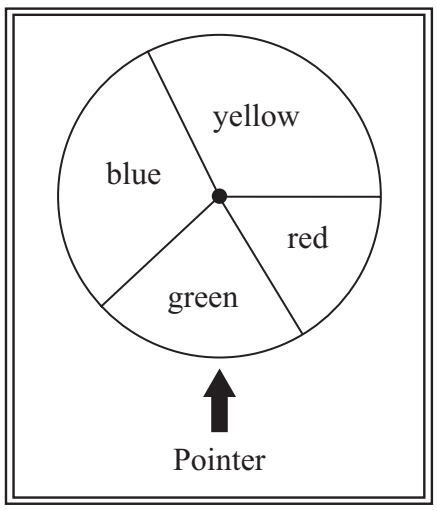



Diagram **NOT** accurately drawn

Harry spins the wheel.
When the wheel stops spinning, Harry writes down the colour shown by the pointer.

The probability that the wheel will stop at yellow or red or green is given in the table.

| **Colour** | yellow | red | green | blue |
|---|---|---|---|---|
| **Probability** | 0.35 | 0.1 | 0.3 | |

(a) Work out the probability that the wheel will stop at blue.

.....

**(2)**

(b) Work out the probability that the wheel will stop at either yellow or red.

.....

**(2)**

Hannah is going to spin the wheel 200 times.

(c) Work out an estimate for the number of times the wheel will stop at green.

.....

**(2)**

**Q2**

**(Total 6 marks)**







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**3.** The table shows the number of births in a hospital from 2000 to 2005

| **Year** | 2000 | 2001 | 2002 | 2003 | 2004 | 2005 |
|---|---|---|---|---|---|---|
| **Number of births** | 608 | 595 | 597 | 623 | 640 | 639 |

(a) Work out the 3-point moving averages for this information.

The first three have been done for you.

600, 605, 620, .....

**(2)**

(b) Use these moving averages to describe the trend.

.....

**(1)**

**Q3**

**(Total 3 marks)**



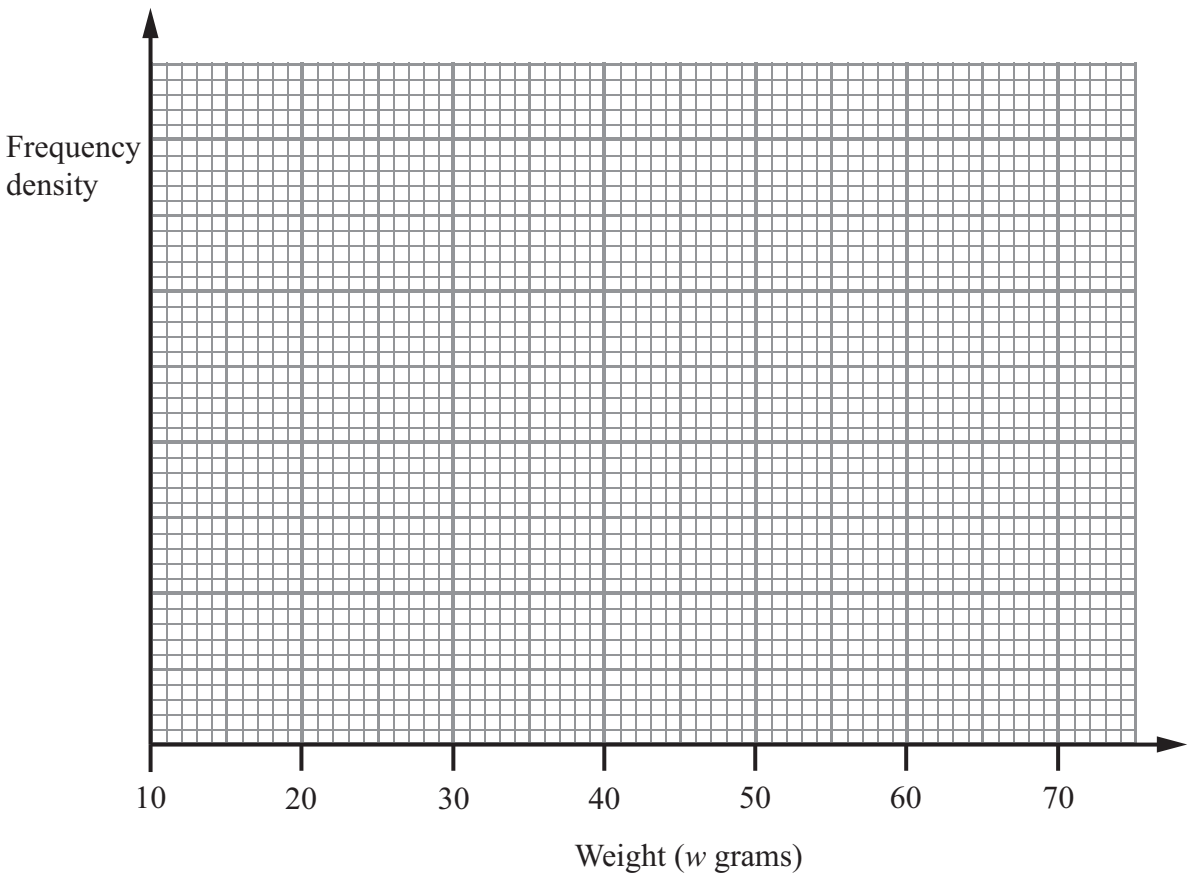
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**4.** The table shows some information about the weights of some packets of crisps.

| **Weight ($w$ grams)** | **Frequency** |
|---|---|
| $20 < w \leqslant 25$ | 4 |
| $25 < w \leqslant 35$ | 12 |
| $35 < w \leqslant 45$ | 14 |
| $45 < w \leqslant 50$ | 8 |
| $50 < w \leqslant 70$ | 6 |




Use the information in the table to draw a histogram.

**Q4**

**(Total 3 marks)**

**TOTAL FOR SECTION A: 15 MARKS**

**END**



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Paper Reference(s)

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# Edexcel GCSE

## Mathematics (Modular) – 2381

Paper 6 – Section B (Non-Calculator)

# Higher Tier



Unit 1 Test – Data Handling

Thursday 11 June 2009 – Morning

Time for Section B: 20 minutes

**Materials required for examination**
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## SECTION B

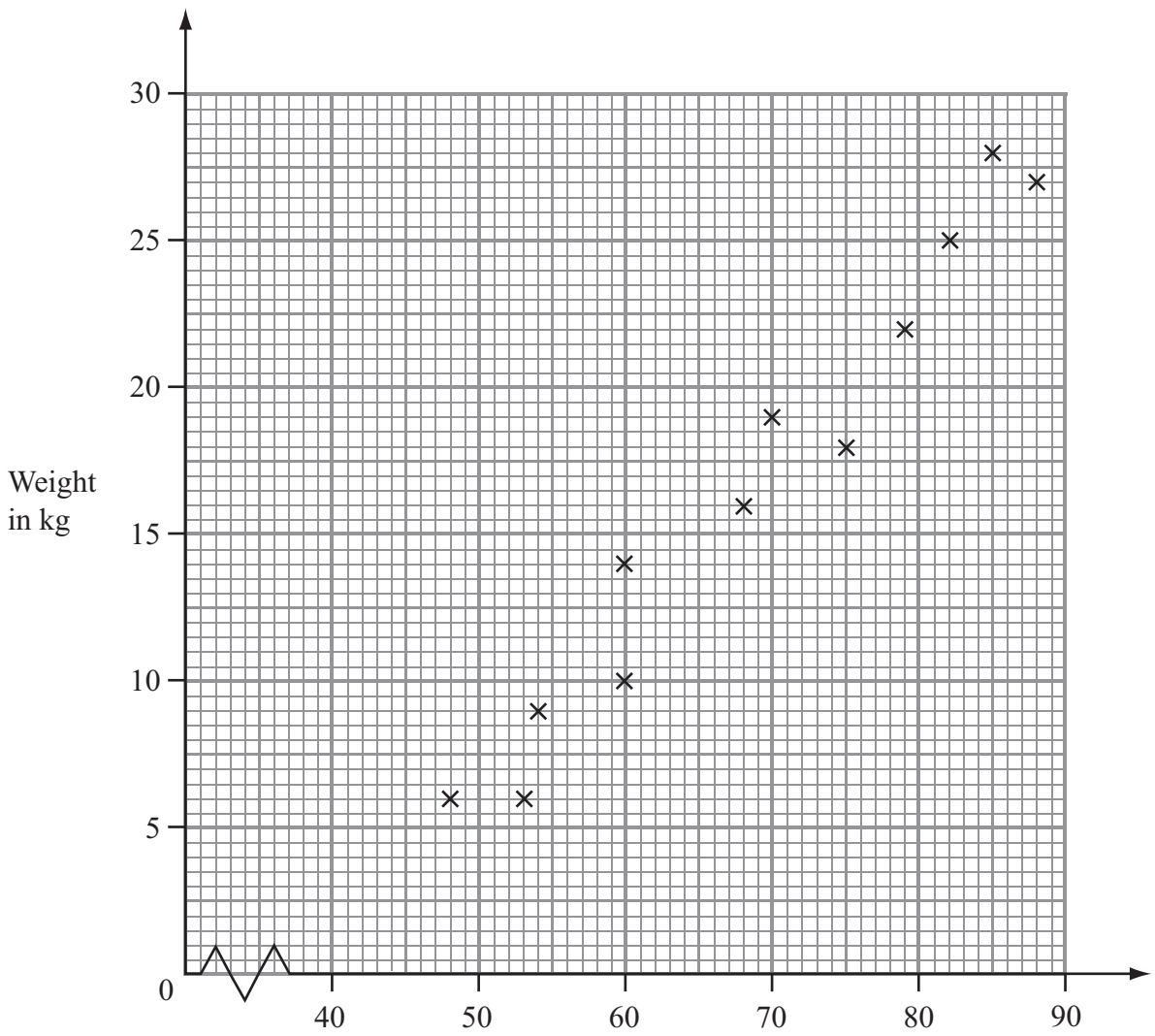
**Answer ALL THREE questions.**

**Write your answers in the spaces provided.**

**You must NOT use a calculator in this section.**

**You must write down all stages in your working.**

**1.** Sanji goes fishing for pike.
The scatter graph shows information about the weights and the lengths of some of the pike Sanji caught.




(a) Describe the relationship between the weight and the length of these pike.

.....

**(1)**



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Sanji also caught a pike of weight 24 kg and length 78 cm.

(b) Show this information on the scatter graph.

**(1)**

A pike has a length of 65 cm.

(c) Estimate the weight of this pike.

..... kg

**(2)**

**Q1**

**(Total 4 marks)**



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**2.** The table gives some information about the area, in km$^2$, of 30 countries.

| **Area ($n$ million km$^2$)** | **Frequency** |
|---|---|
| $0.00 < n \leqslant 0.25$ | 4 |
| $0.25 < n \leqslant 0.50$ | 9 |
| $0.50 < n \leqslant 0.75$ | 4 |
| $0.75 < n \leqslant 1.00$ | 5 |
| $1.00 < n \leqslant 1.25$ | 6 |
| $1.25 < n \leqslant 1.50$ | 1 |
| $1.50 < n \leqslant 1.75$ | 1 |

(a) Write down the modal class interval.

.....

**(1)**

(b) Find the class interval that contains the median.

.....

**(1)**

(c) Complete the cumulative frequency table.

| **Area ($n$ million km$^2$)** | **Cumulative frequency** |
|---|---|
| $0.00 < n \leqslant 0.25$ | 4 |
| $0.00 < n \leqslant 0.50$ | |
| $0.00 < n \leqslant 0.75$ | |
| $0.00 < n \leqslant 1.00$ | |
| $0.00 < n \leqslant 1.25$ | |
| $0.00 < n \leqslant 1.50$ | |
| $0.00 < n \leqslant 1.75$ | |

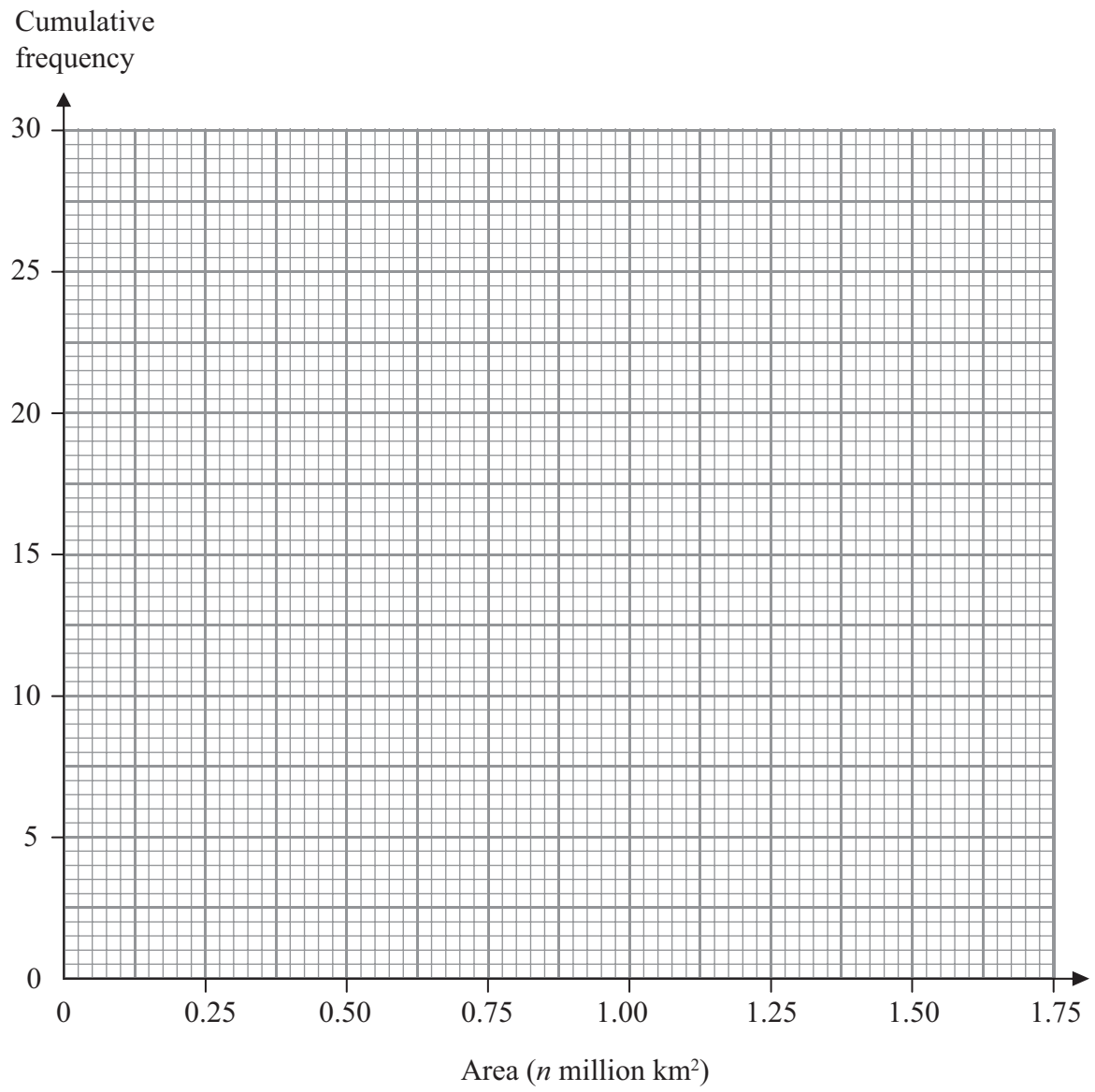
**(1)**



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(d) On the grid, draw a cumulative frequency graph for your table.

**(2)**

(e) Use your graph to find an estimate for the number of these countries with an area greater than 0.90 million km$^2$.

.....

**(2)** **Q2**

**(Total 7 marks)**







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**3.** There are 4 bottles of orange juice,
3 bottles of apple juice,
2 bottles of tomato juice.

Viv takes a bottle at random and drinks the juice.
Then Caroline takes a bottle at random and drinks the juice.

Work out the probability that they both take a bottle of the same type of juice.

.....

**Q3**

**(Total 4 marks)**

**TOTAL FOR SECTION B: 15 MARKS**

**TOTAL FOR PAPER: 30 MARKS**

**END**



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# Mathematics 2381

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**Mark Scheme (Results)**

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Mathematics 2381

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| 5381H/6A | | | | |
|---|---|---|---|---|
| **Question** | **Working** | **Answer** | **Mark** | **Notes** |
| 1 | (1 × 11 + 3 × 12 + 0 × 13 + 2 × 14 + 4 × 15) ÷ 10<br>= 135 ÷ 10<br>= 11 + 36 + 0 + 28 + 60 | 13.5 | 3 | M1 for 1 × 11 or 3 × 12 or 0 × 13 or 2 × 14 or 4 × 15<br>or sight of any two or more of the correct answers 11, 36 , 0, 28, 60 (must be from a product however)<br>M1 (dep) for adding 4 or 5 of these products and dividing by 10<br>A1 cao<br>[SC: B2 available for using '13 × 0 = 13' without further mistakes] giving an answer of 14.8 |
| 2 (a) | 1 – (0.35 + 0.1 + 0.3) | 0.25 | 2 | M1 for 1 – (0.35 + 0.1 + 0.3) oe<br>A1 for 0.25 oe (accept 25%)<br>Note:- Look for answer in the table if it's not on answer line<br><br>[SC: B1 for 1 – 0.39 = 0.61, if M0 scored;<br>0.61 with no working gets no marks] |
| (b) | 0.35 + 0.1 | 0.45 | 2 | M1 for 0.35 + 0.1 oe<br>A1 for 0.45 oe<br>[SC:B1 for an answer of 0.36 or for 0.45 seen in working followed by subtraction from 1] |
| (c) | 0.3 × 200 | 60 | 2 | M1 for 0.3 × 200<br>A1 cao<br>SC: B2 for 60 out of 200<br>SC: B1 for 60 in 200 or 60/200 or 0.3 × 200/4 |



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| 5381H/6A | | | | |
|---|---|---|---|---|
| **Question** | **Working** | **Answer** | **Mark** | **Notes** |
| 3 (a) | (623+640+639)÷3 | 634 | 2 | M1 for either (623+640+639)÷3 or (608+595+597)÷3 or (595+597+623)÷3 or (597+623+640)÷3 seen with no other inconsistent approach<br>A1 cao |
| (b) | | Increase (upwards) | 1 | B1 for increase or upwards trend or 'number of births went up' or 'it goes up' oe |
| 4 | | Bars at 4cm, 6cm, 7cm, 8 cm and 1.5 cm in height oe with fd axis labeled correctly | 3 | M1 for dividing frequency by group size or sight of 0.8, 1.2, 1.4, 1.6, 0.3 (minimum 2 seen)<br>A1 for bars of consistent areas for all given frequencies<br>B1 for fd axis labeled correctly and consistently<br><br>**Alternative scheme**<br>B3 for bars at 4cm, 6cm, 7cm, 8 cm and 1.5 cm in height oe with fd axis labeled correctly and consistently (e.g. 1 cm fd 0.2)<br><br>[B2 for bars at 4cm, 6cm, 7cm, 8cm and 1.5cm in height oe with no labeling or incorrect labeling on the fd axis OR fully and correctly labeled fd axis with one bar error]<br><br>[B1 for 4$^{th}$ bar twice as high as 1$^{st}$ bar]<br>[B0 for bar chart with unequal bars]<br><br>**NB** apply the same mark-scheme if a different frequency density is used e.g. bars at 1.6 cm, 2.4 cm, 2.8 cm, 3.2 cm, 0.6 cm |



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| 5381H/6B | | | | |
|---|---|---|---|---|
| **Question** | **Working** | **Answer** | **Mark** | **Notes** |
| 1 (a) | | Positive correlation, or the heavier the pike the longer it is. | 1 | B1 for positive correlation, or the heavier the pike the longer it is. (or equivalent) |
| (b) | | Point plotted correctly | 1 | B1 for a correct plot ±1 square |
| (c) | | 12-17 kg | 2 | B2 for an answer in the range 12 to 17 kg<br>**OR**<br>M1 for drawing a line of best fit<br>A1 for an answer in the range 12 to 17 kg or ft from "line of best fit" |
| 2 (a) | | $0.25 < p \leq 0.50$ | 1 | B1 for $0.25 < p \leq 0.50$ (accept 0.25 to 0.5(0) or clearly identified on the diagram as the mode) |
| (b) | | $0.5 < n \leq 0.75$ | 1 | B1 for $0.5 < n \leq 0.75$ (accept 0.5(0) to 0.75 or clearly identified on the diagram as the median) |
| (c) | | 4, 13, 17, 22, 28, 29, 30 | 1 | B1 cao |
| (d) | | cf graph | 2 | B2 for a fully correct cf graph (accept ogive)<br>[B1 for 5 or 6 consistent, correctly plotted points from a sensible cf table (increasing values) OR for a cf graph drawn through points other than the end points of each interval] |
| (e) | | 9 or 10 or 11 | 2 | M1 for clear method to read off from a cf graph at area = 0.90, on the cf scale, can be awarded from their reading ± 1sq<br>A1 ft for an answer of 9 or 10 or 11<br>[B1 for an answer in the range 9 to 11 if M0 scored] |



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| 5381H/6B | | | | |
|---|---|---|---|---|
| **Question** | **Working** | **Answer** | **Mark** | **Notes** |
| 3 | $(\frac{4}{9} \times \frac{3}{8}) + (\frac{3}{9} \times \frac{2}{8}) + (\frac{2}{9} \times \frac{1}{8})$<br><br>$= \frac{12+6+2}{72}$ | $\frac{20}{72}$ oe | 4 | B1 for $\frac{3}{8}$ or $\frac{2}{8}$ or $\frac{1}{8}$ seen as 2nd probability<br>M1 for $(\frac{4}{9} \times \frac{3}{8})$ or $(\frac{3}{9} \times \frac{2}{8})$ or $(\frac{2}{9} \times \frac{1}{8})$<br>M1 for $(\frac{4}{9} \times \frac{3}{8}) + (\frac{3}{9} \times \frac{2}{8}) + (\frac{2}{9} \times \frac{1}{8})$<br>A1 for $\frac{20}{72}$ oe<br>**Alternative scheme for replacement**<br>B0 for $\frac{4}{9}$ or $\frac{3}{9}$ or $\frac{2}{9}$ seen as 2nd probability<br>M1 for $(\frac{4}{9} \times \frac{4}{9})$ or $(\frac{3}{9} \times \frac{3}{9})$ or $(\frac{2}{9} \times \frac{2}{9})$<br>M1 for $(\frac{4}{9} \times \frac{4}{9}) + (\frac{3}{9} \times \frac{3}{9}) + (\frac{2}{9} \times \frac{2}{9})$<br>A0 for $\frac{29}{81}$<br>**Special cases**<br>S.C. if M0 scored, award B2 for $\frac{29}{81}$ or $\frac{20}{81}$ or $\frac{29}{72}$<br>S.C. if M0 scored award B1 for $\frac{3}{9}$ and $\frac{2}{9}$ and $\frac{1}{9}$<br>**or** $\frac{3}{8}$ and $\frac{2}{8}$ and $\frac{4}{8}$ seen as second probability if B2 not scored |



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| Centre No. | | | | | | Paper Reference | | | | | | | | Surname | Initial(s) |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Candidate No. | | | | | | 5 | 3 | 8 | 1 | H | / | 6 | A | Signature | |

Paper Reference(s)

**5381H/6A**

# Edexcel GCSE

## Mathematics (Modular) – 2381

Paper 6 – Section A (Calculator)

# Higher Tier

Unit 1 Test – Data Handling

Tuesday 3 March 2009 – Morning

Time for Section A: 20 minutes

Examiner's use only

| | | |
|---|---|---|
| | | |

Team Leader's use only

| | | |
|---|---|---|
| | | |



| Section | Leave Blank |
|---|---|
| A | |
| B | |

**Materials required for examination**
Ruler graduated in centimetres and millimetres, protractor, compasses, pen, HB pencil, eraser, calculator. Tracing paper may be used.

**Items included with question papers**
Nil

### Instructions to Candidates

In the boxes above, write your centre number, candidate number, your surname, initials and signature.
Check that you have the correct question paper.
Answer ALL the questions. Write your answers in the spaces provided in this question paper.
If you need more space to complete your answer to any question, use additional answer sheets.

### Information for Candidates

The marks for individual questions and the parts of questions are shown in round brackets: e.g. **(2)**.
This section has 4 questions. The total mark for this section is 15. The total mark for this paper is 30.
There are 8 pages in this question paper. Any blank pages are indicated.
**Calculators may be used for Section A only.**
If your calculator does not have a π button, take the value of π to be 3.142 unless the question instructs otherwise.

### Advice to Candidates

Show all stages in any calculations.
Work steadily through the paper. Do not spend too long on one question.
If you cannot answer a question, leave it and attempt the next one.
Return at the end to those you have left out.

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**SECTION A**

**Answer ALL FOUR questions.**

**Write your answers in the spaces provided.**

**You may use a calculator in this section.**

**You must write down all stages in your working.**

**1.** Zoe recorded the weights, in kilograms, of 15 people.

Here are her results.

| | | | | | | | |
|---|---|---|---|---|---|---|---|
| 87 | 51 | 46 | 77 | 74 | 58 | 68 | 78 |
| 48 | 63 | 52 | 64 | 79 | 60 | 66 | |

Complete the ordered stem and leaf diagram to show these results.

| | |
|---|---|
| 4 | |
| 5 | |
| 6 | |
| 7 | |
| 8 | |

Key:

**Q1**

**(Total 3 marks)**

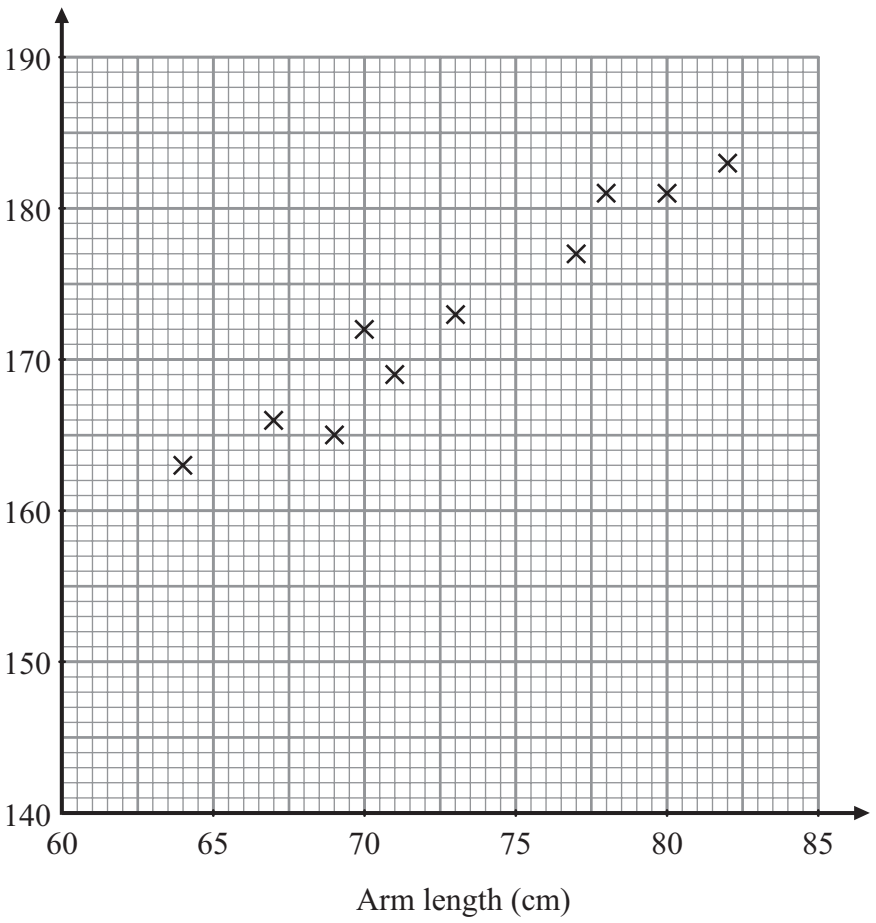


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**2.** The scatter graph shows some information about 10 students.
It shows the arm length and the height of each student.




(a) What type of correlation does this scatter graph show?

.....
**(1)**

(b) Draw a line of best fit on the scatter graph.

**(1)**

Another student has an arm length of 75 cm.

(c) Use your line of best fit to estimate the height of this student.

..... cm
**(1)**

**Q2**

**(Total 3 marks)**



N 3 4 6 9 9 A 0 3 0 8

**Turn over**

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**3.** The table shows the number of televisions sold each month by a shop.

| **Month** | April | May | June | July | Aug | Sept | Oct |
|---|---|---|---|---|---|---|---|
| **Number of televisions** | 163 | 100 | 118 | 99 | 63 | 92 | 74 |

(a) Work out the four-point moving averages for this information.
The first three have been worked out for you.

120 ..... 95 ..... 93 ..... .....

**(2)**

(b) Use the moving averages to describe the trend.

.....

**(1)**

The **cumulative frequency** table shows information about the prices, in £, of 100 televisions.

| **Price (£$n$)** | **Cumulative frequency** |
|---|---|
| $0 < n \leqslant 200$ | 5 |
| $0 < n \leqslant 400$ | 20 |
| $0 < n \leqslant 600$ | 40 |
| $0 < n \leqslant 800$ | 75 |
| $0 < n \leqslant 1000$ | 100 |

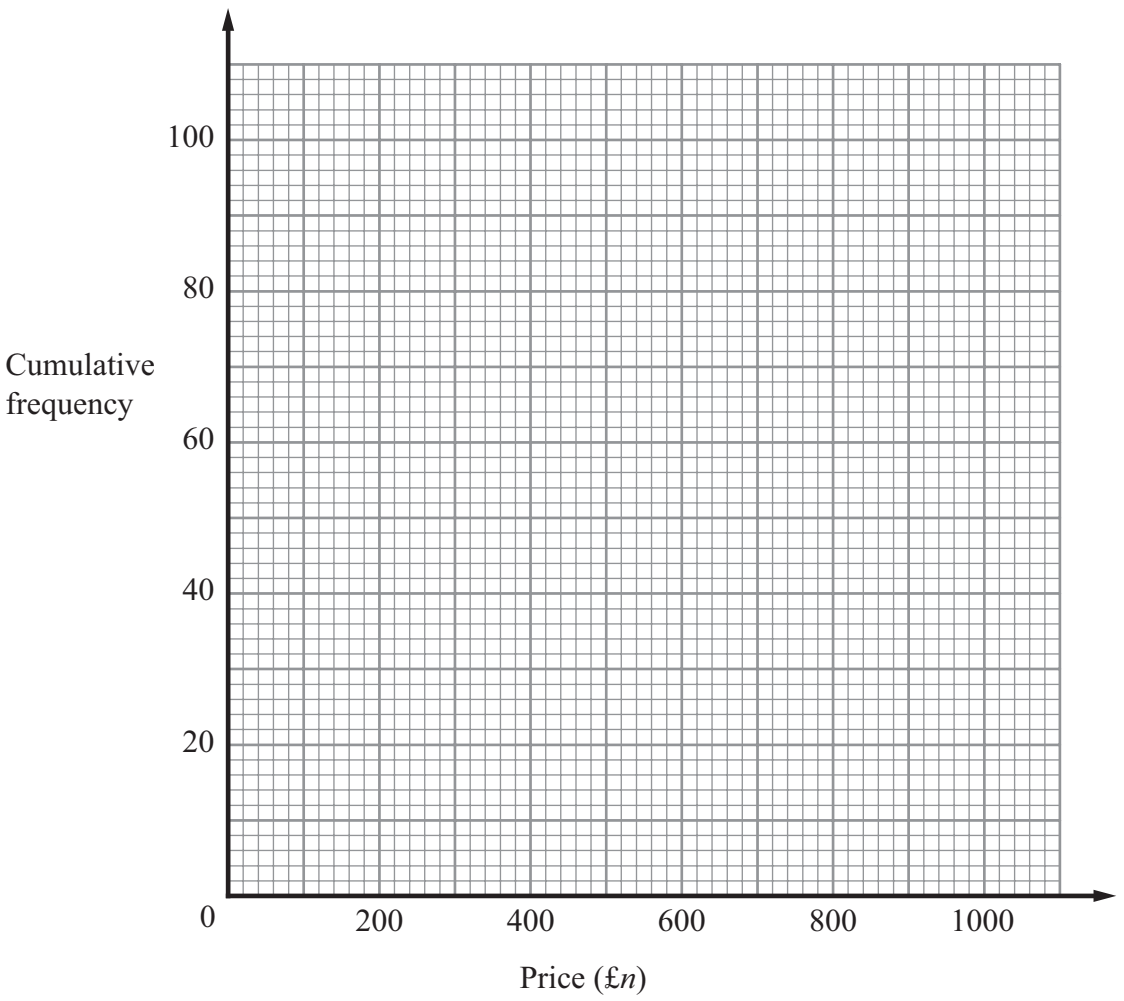


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(c) On the grid below, draw a cumulative frequency graph for the table.




**(2)**

(d) Use your graph to find an estimate for the median price of these televisions.

£ .....

**(1)**

**(Total 6 marks)**

**Q3**



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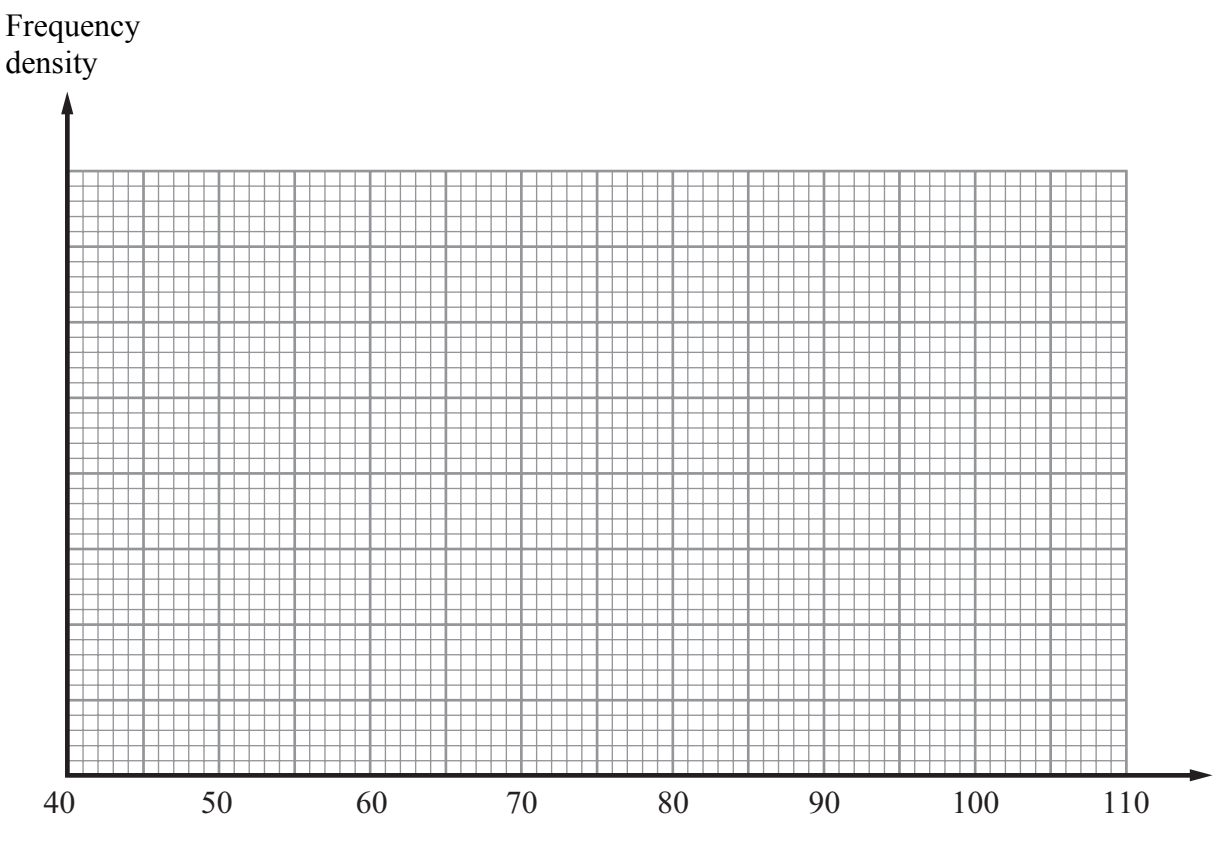
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**4.** The table gives some information about the lengths of time some boys took to run a race.

| Time ($t$ minutes) | Frequency |
|---|---|
| $40 \leqslant t < 50$ | 16 |
| $50 \leqslant t < 55$ | 18 |
| $55 \leqslant t < 65$ | 32 |
| $65 \leqslant t < 80$ | 30 |
| $80 \leqslant t < 100$ | 24 |

Draw a histogram for the information in the table.




Q4

**(Total 3 marks)**

**TOTAL FOR SECTION A: 15 MARKS**

**END**



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N 3 4 6 9 9 A 0 8 0 8

| Centre No. | | | | | | Paper Reference | | | | | | | | Surname | Initial(s) |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Candidate No. | | | | | | 5 | 3 | 8 | 1 | H | / | 6 | B | Signature | |

Paper Reference(s)

**5381H/6B**

Examiner's use only

| | | |
|---|---|---|
| | | |

Team Leader's use only

| | | |
|---|---|---|
| | | |

# Edexcel GCSE

## Mathematics (Modular) – 2381

Paper 6 – Section B (Non-Calculator)

# Higher Tier



Unit 1 Test – Data Handling

Tuesday 3 March 2009 – Morning

Time for Section B: 20 minutes

**Materials required for examination**
Ruler graduated in centimetres and millimetres, protractor, compasses, pen, HB pencil, eraser.
Tracing paper may be used.

**Items included with question papers**
Nil

### Instructions to Candidates

In the boxes above, write your centre number, candidate number, your surname, initials and signature.
Check that you have the correct question paper.
Answer ALL the questions. Write your answers in the spaces provided in this question paper.
If you need more space to complete your answer to any question, use additional answer sheets.

### Information for Candidates

The marks for individual questions and the parts of questions are shown in round brackets: e.g. **(2)**.
This section has 4 questions. The total mark for this section is 15. The total mark for this paper is 30.
There are 8 pages in this question paper. Any blank pages are indicated.
**Calculators may be used for Section A only.**

### Advice to Candidates

Show all stages in any calculations.
Work steadily through the paper. Do not spend too long on one question.
If you cannot answer a question, leave it and attempt the next one.
Return at the end to those you have left out.

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## SECTION B

**Answer ALL FOUR questions.**

**Write your answers in the spaces provided.**

**You must NOT use a calculator in this section.**

**You must write down all stages in your working.**

**1.** A bag contains only red, green and blue counters.

The table shows the probability that a counter chosen at random from the bag will be red or will be green.

| **Colour** | Red | Green | Blue |
|---|---|---|---|
| **Probability** | 0.5 | 0.3 | |

Mary takes a counter at random from the bag.

(a) Work out the probability that Mary takes a blue counter.

.....

**(2)**

The bag contains 50 counters.

(b) Work out how many green counters there are in the bag.

.....

**(2)** **Q1**

**(Total 4 marks)**



N 3 4 7 0 0 A 0 2 0 8

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**2.** James wants to find out how many text messages people send.

He uses this question on a questionnaire.

"How many text messages do you send?"

☐ 1 to 10 ☐ 11 to 20 ☐ 21 to 30 ☐ more than 30

(a) Write down **two** things wrong with this question.

1 .....

.....

2 .....

.....

**(2)**

James asks 10 students in his class to complete his questionnaire.

(b) Give **one** reason why this may not be a suitable sample.

.....

.....

**(1)**

**Q2**

**(Total 3 marks)**



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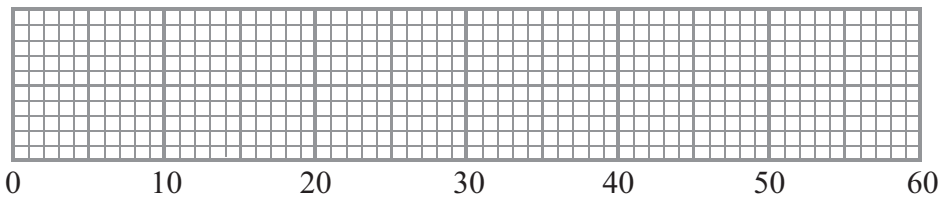
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**3.** On Friday, Peter went to the airport.
He recorded the number of minutes that each plane was delayed.
He used his results to work out the information in this table.

| | **Minutes** |
|---|---|
| Shortest delay | 0 |
| Lower quartile | 2 |
| Median | 8 |
| Upper quartile | 18 |
| Longest delay | 41 |

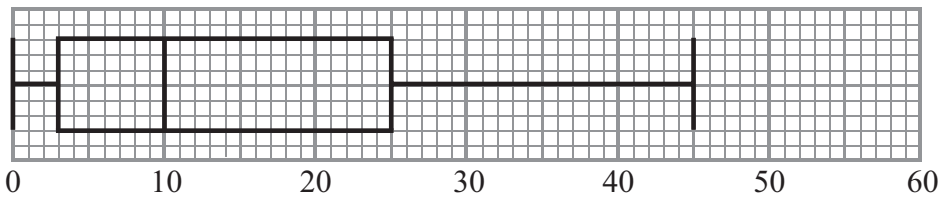
(a) On the grid, draw a box plot to show the information in the table.




**(2)**

Peter also went to the airport on Saturday.
He recorded the number of minutes that each plane was delayed.

The box plot below was drawn using this information.




(b) Make two comparisons between the distributions of plane delays on Friday and on Saturday.

.....

.....

.....

.....

**(2)**

**(Total 4 marks)**

**Q3**

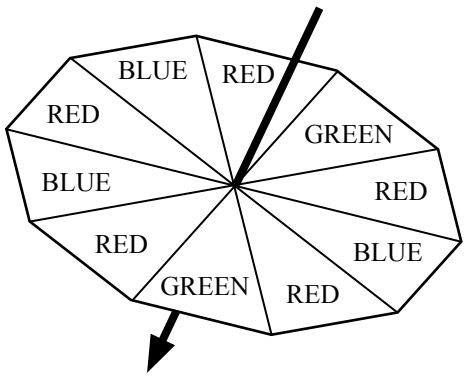


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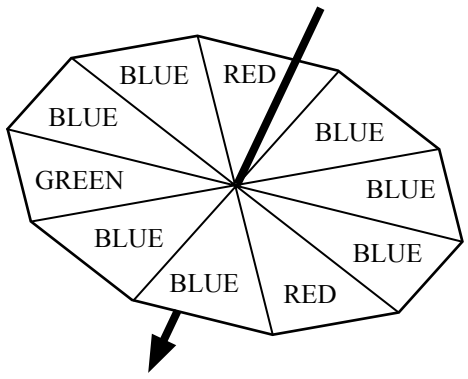
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**4.** William has two 10-sided spinners.
The spinners are equally likely to land on each of their sides.




**A**




**B**

Spinner **A** has 5 red sides, 3 blue sides and 2 green sides.
Spinner **B** has 2 red sides, 7 blue sides and 1 green side.

William spins spinner **A** once.
He then spins spinner **B** once.

Work out the probability that spinner **A** and spinner **B** do **not** land on the same colour.

.....

**(Total 4 marks)**

**Q4**

**TOTAL FOR SECTION B: 15 MARKS**
**TOTAL FOR PAPER: 30 MARKS**

**END**



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Edexcel GCSE

# Mathematics 2381

March 2009

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## Mark Scheme (Results)

Edexcel GCSE
Mathematics 2381

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| 5381H/06 - Section A | | | | | |
|---|---|---|---|---|---|
| **Question** | | **Working** | **Answer** | **Mark** | **Notes** |
| 1 | | | 4 \| 6 8<br>5 \| 1 2 8<br>6 \| 0 3 4 6 8<br>7 \| 4 7 8 9<br>8 \| 7 | 3 | M1 for unordered leaves (condone two errors or omissions)<br>A1 for a fully correct ordered stem and leaf diagram<br>B1 for key, eg 4\|6 means 46 |
| 2 | (a) | | Positive | 1 | B1 cao |
| | (b) | | Line of best fit | 1 | B1 for a straight line passing between (65, 160) and (65, 166) and between (80, 178) and (80, 184) |
| | (c) | | 173 – 176 | 1 | B1 for 173 – 176 or ft from a single line segment with positive gradient ± 1 full (2mm) square |
| 3 | (a) | | 82 | 2 | M1 for (99 + 63 + 92 + 74) ÷ 4 or 328 ÷ 4<br>A1 cao |
| | (b) | | Decreasing | 1 | B1 for decreasing oe |
| | (c) | Heights<br>= 5, 20, 40, 75, 100 | Correct cumulative frequency graph | 2 | B2 for fully correct cumulative frequency graph (Ignore any part of graph outside range of points)<br>(B1 for 4 or 5 points plotted correctly ± 1 full (2mm) square at the end of interval<br>or for 4 or 5 points plotted not at end but consistent within each interval and joined) |
| | (d) | | 640 – 680 | 1 | B1 for 640 – 680 or ft (dep on graph being cf)<br>for reading from graph at 50 ± 1 full (2mm) square |

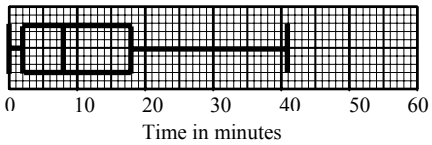


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| 5381H/06 – Section A | | | | | |
|---|---|---|---|---|---|
| **Question** | | **Working** | **Answer** | **Mark** | **Notes** |
| 4 | | $40 \leq t < 50$ fd 1.6<br>$50 \leq t < 55$ fd 3.6<br>$55 \leq t < 65$ fd 3.2<br>$65 \leq t < 80$ fd 2<br>$80 \leq t < 100$ fd 1.2 | | 3 | B3 for 5 correct histogram bars ± ½`square AND frequency density numbered appropriately or key and consistent scaling<br><br>(B2 for 5 correct histogram bars ± ½`square<br>**or** all heights correct with frequency density numbered appropriately with one error in numbering<br>**or** 3 or 4 histogram bars correct AND frequency density numbered appropriately or key and consistent scaling )<br><br>(B1 for 4 histogram bars in correct proportion, no numbering<br>**or** 2 or more frequency densities correctly<br>**or** 2 or more histogram bars in correct proportion with appropriate numbering on the f.d. axis ) |



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| 5381H/06 – Section B | | | | | |
|---|---|---|---|---|---|
| **Question** | | **Working** | **Answer** | **Mark** | **Notes** |
| 1 | (a) | | 0.2 | 2 | M1 for 1– ( 0.5 + 0.3 )<br>A1 for 0.2 oe<br><br>**SC** Award M1A0 for an answer of 0.92 |
| | (b) | $0.3 \times 50$ | 15 | 2 | M1 for $0.3 \times 50$ oe<br>A1cao<br>**SC** Award B1 for $\frac{15}{50}$ on the answer line if M0 scored |
| 2 | (a) | | No time period<br>No response box for 0<br>Need smaller class intervals | 2 | B2 for 2 of the 3 reasons<br><br>(B1 for 1 reason) |
| | (b) | | Comment on sample | 1 | B1 for sample too small<br>or all same age group<br>or same gender |
| 3 | (a) |  | Box plot | 2 | B1 for ends of whiskers at 0 and 41 (with an appropriate box)<br><br>B1 for ends of box at 2 and 18 with median at 8 |
| | (b) | | 2 comparisons | 2 | B2 for two comparisons with at least one on spread<br><br>(B1 for one comparison of spread<br>or one comparison of values) |



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| 5381H/06-Section B | | | | | |
|---|---|---|---|---|---|
| **Question** | | **Working** | **Answer** | **Mark** | **Notes** |
| 4 | | $(\frac{5}{10} \times \frac{7}{10})$ + $(\frac{5}{10} \times \frac{1}{10})$ + $(\frac{3}{10} \times \frac{2}{10})$ + $(\frac{3}{10} \times \frac{1}{10})$ + $(\frac{2}{10} \times \frac{2}{10})$ + $(\frac{2}{10} \times \frac{7}{10})$<br>= $\frac{35+5+6+3+4+14}{100}$<br>**OR**<br>$1 - [(\frac{5}{10} \times \frac{2}{10}) + (\frac{3}{10} \times \frac{7}{10}) + (\frac{2}{10} \times \frac{1}{10})]$<br>$= 1 - \frac{10+21+2}{100} = 1 - \frac{33}{100}$ | $\frac{67}{100}$ | 4 | M1 for a tree diagram with at most 2 errors<br>or one of $(\frac{5}{10} \times \frac{7}{10})$ or $(\frac{5}{10} \times \frac{1}{10})$ etc<br>M1 for 5 out of 6 correct pairings of different colours<br>or 2 out of 3 correct pairings of same colours<br>or 8 out of 9 correct pairings of all colours<br>M1 (dep on M2) for adding<br>5 or 6 correct pairings of different colours<br>or 1 – (2 or 3 correct pairings of same colours)<br>A1 for $\frac{67}{100}$ oe<br>**SC** All correctly done but 2nd spinner all $\frac{x}{9}$<br>Award M1 for a "correct tree"<br>M1 for adding 5 or 6 "correct pairings" of different colours<br>or 1 – (2 or 3 "correct pairings" of same colours)<br>M0 A0 (answer = 67/90) |



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# Mathematics 2381

# Paper 5381H/06

November 2008

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**Mark Scheme**

Edexcel GCSE

Mathematics 2381



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| 5381H/06 - Section A | | | | | |
|---|---|---|---|---|---|
| **Question** | | **Working** | **Answer** | **Mark** | **Notes** |
| 1 | (a) | 1 – (0.3 + 0.2 + 0.1) | 0.4 | 2 | M1 for 1 – "(0.3 + 0.2 + 0.1)"<br>A1 for 0.4 oe<br>(watch out for answers given only in table) |
| | (b) | 0.2 x 50 | 10 | 2 | M1 for 0.2 x 50<br>A1 for cao<br>SC B1 for 10/50 |
| 2 | (a) | | Overlapping intervals<br>Time frame<br>No 6+ (or none) | 2 | B2 for 2 correct731607245<br>(B1 for 1 correct) |
| | (b) | | Not representative of all ages<br>Students use computers more | 1 | B1 for one acceptable reason |
| 3 | | (6 x 5) + (11 x 15) + (8 x 25) + (5 x 35) = 570<br><br>"570" ÷ "(6+11+8+5)" | 19 | 4 | M1 for use of *fx* with *x* consistent within intervals (including end points) accept one error<br>M1 (dep) for use of midpoints<br>M1 (dep on 1st M1) for use of $\Sigma fx/\Sigma f$<br>A1 cao |
| 4 | | | 2 comparisons | 2 | B1 for a comparison of a specific value, e.g. John's median is greater than Peter's median<br><br>B1 for a comparison of spread, e.g. John's range is wider than Peter's range<br>(watch out for two comparisons given together) |



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| 5381H/06 – Section A | | | | |
|---|---|---|---|---|
| **Question** | **Working** | **Answer** | **Mark** | **Notes** |
| 5 | frequency densities<br>0.4, 0.6, 1.0, 0.6, 0.2 | bars 3cm, 1cm high respectively | 2 | M1 for consistent correct use of fd or $1cm^2=2$ (may be implied by one correct bar)<br>A1 for 2 correct bars |



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| 5381H/06 - Section B | | | | |
|---|---|---|---|---|
| **Question** | **Working** | **Answer** | **Mark** | **Notes** |
| 1 (a) | | (67, 50), (70, 50), (75, 40), (80, 25) | 2 | B2 for 4 points plotted correctly (allow ±2mm tolerance)<br>(B1 for 2 or 3 points plotted correctly) |
| (b) | | As the price increases the number of cameras sold decreases | 1 | B1 for decrease in number sold with price.<br>(accept negative correlation) |
| (c) | | line of best fit | 1 | B1 for line within given limits passing between (70, 40) & (70, 55) and between (80, 15) & (80, 30) |
| (d) | | 35 – 39 | 1 | B1 for 35 – 39 or ft their line of best fit from 74 (allow ±2 mm tolerance) |
| 2 (a) | | 88 | 1 | B1 for value in range 87 – 89 |
| (b) | | 38 | 1 | B1 for value in range 38 -39 |
| (c) | 57 – 20 | 37 | 2 | B2 for 32 – 40<br>(B1 for using graph at 25 and 75; may be indicated by marks at 25 and 75) |
| 3 | | Reason | 1 | B1 for indication of not enough trials |
| 4 (a) | | 4/5<br>(7/10, 3/10) (1/10, 9/10) | 2 | B2 cao<br>(B1 for 2 correct from 4/5, (7/10, 3/10), (1/10, 9/10)) |
| (b) | (1/5 × 7/10) + (4/5 × 1/10) | 11/50 | 3 | M1 for 1/5 × "7/10" or "4/5" × "1/10" oe selected<br>M1 for (1/5 × 7/10) + (4/5 × 1/10) oe<br>A1 for 11/50 oe |



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