Edexcel GCSE

Mathematics 2381
Paper 5383H/10

March 2008

Mark Scheme

Edexcel GCSE
Mathematics 2381

NOTES ON MARKING PRINCIPLES

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

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

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

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If working is crossed out and still legible, then it should be given any appropriate marks, as long as it has not been replaced by alternative work.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

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

6   **Ignoring subsequent work**
     It is appropriate to ignore subsequent work when the additional work
     does not change the answer in a way that is inappropriate for the
     question: eg. incorrect cancelling of a fraction that would otherwise
     be correct
     It is not appropriate to ignore subsequent work when the additional
     work essentially makes the answer incorrect eg algebra.
     Transcription errors occur when candidates present a correct answer
     in working, and write it incorrectly on the answer line; mark the
     correct answer.

7   **Probability**
     Probability answers must be given a fractions, percentages or
     decimals. If a candidate gives a decimal equivalent to a probability,
     this should be written to at least 2 decimal places (unless tenths).
     Incorrect notation should lose the accuracy marks, but be awarded
     any implied method marks.
     If a probability answer is given on the answer line using both
     incorrect and correct notation, award the marks.
     If a probability fraction is given then cancelled incorrectly, ignore the
     incorrectly cancelled answer.

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

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

5383H/10

Question	Working	Answer	Mark	Notes
1 (a)(i) (ii)		130 Sum of angles on a straight line = 180 $^\circ$	2	B1 cao B1 for "sum of the angles on a straight line = 180°" oe Note: The reason must contain 'angles' and 'line' OR 'line' and '180°'
(b)(i) (ii)		50 Alternate angles on parallel lines are equal	2	B1 cao B1 for " alternate angles on parallel lines are equal" oe (accept 'Z' angles)
2	$6c + c + 2d + 5d$	$7c + 7d$	2	B2 for $7c + 7d$ oe (accept $c7 + d7$, $7 \times c + 7 \times d$ or $c \times 7 + d \times 7$) [B1 for $7c$ or $7d$ oe seen]
3	$120 \div 8 \times 10$	150	2	M1 for an attempt to divide 120 by 8 or for 15 seen (accept 2 pancakes = 30 g of flour, for example) or for $\dfrac{10}{8}$ oe seen A1 cao
4	$\dfrac{15.6}{3.25}$	4.8 or $\dfrac{24}{5}$	2	B2 for 4.8 or $\dfrac{24}{5}$ or $4\dfrac{4}{5}$ only [B1 for 3.25 oe seen or any equivalent fraction to $\dfrac{24}{5}$ written as an improper or mixed fraction]

5383H/10

Question	Working	Answer	Mark	Notes
5 (a)		**−5** −1 **3** **7** 11	2	B2 for a fully correct table [B1 for 1 or 2 correct entries in the table]
(b)		Straight line drawn from $(-2, -5)$ to $(2, 11)$	2	B2 for a straight line drawn from $(-2, -5)$ to $(2, 11)$ [B1 ft from (a) for at least 4 'correct' plots or for a single line of gradient 4 or for a single line passing through $(0, 3)$]
6	$6 \times 10^4 \times 4 \times 10^3$ $= 24 \times 10^7$ **Alternative:** 60 000 × 4000 = 240 000 000	2.4×10^8	2	M1 for $6 \times 4 \times 10^{4+3}$ or better A1 cao [SC: B1 for 2.4×10^n where $n \neq 8$ if M0 scored] **Alternative:** B1 for 60 000 and 4000 seen or 240 000 000 seen B1 cao
7	$x^2 + x - 2x - 2$	$x^2 - x - 2$	2	M1 for exactly 4 terms correct ignoring signs (eg $x^2,\ x,\ 2x,\ 2$) or 3 correct terms out of no more than 4 terms with correct signs (ie 3 out of 4 of $x^2, +x, -2x, -2$) A1 cao
8	$\dfrac{p^2 - 9}{2p + 6} = \dfrac{(p-3)(p+3)}{2(p+3)}$	$\dfrac{p-3}{2}$ oe	3	B1 for $(p - 3)(p + 3)$ B1 for $2(p + 3)$ B1 for $\dfrac{p-3}{2}$ oe for example $\dfrac{p}{2} - 1\dfrac{1}{2}$

5383H/10

Question	Working	Answer	Mark	Notes
9	angle $RSO = 90^o - x$ (angle between tangent and radius = 90°) angle RSO = angle SRO = $90^o - x$ (base angles of an isosceles triangle) angle $ROS = 180^o - (90^o - x) - (90^o - x) = 2x$ **Alternative**: Angle TSR = angle $SPR = x$ where P is a point on the circumference on the major segment (angles in alternate segment) Angle $ROS = 2x$ (angle at centre = twice angle at circumference)		4	B1 for stating (this may be just indicated on the diagram) or using the fact that angle $OST = 90^o$ M1 for angle $ROS = 180^o - (90^o - x) - (90^o - x)$ or equivalent A1 for completing the proof to show that angle $ROS = 2x$ B1 for reasons "angle between tangent and radius = 90°" **and** "base angles of an isosceles triangle" **Alternative:** B1 for identifying angle $SPR = x$ B1 for reason "angles in alternate segment theorem" B1 for "angle at centre = twice angle at circumference" B1 for completion of proof