

Edexcel GCSE

Mathematics B 2544

Paper 5543H/ 11

March 2007

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Mark Scheme (Results)



## 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If working is crossed out and still legible, then it should be given any appropriate marks, as long as it has not been replaced by alternative work.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 as 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.

**Remember: if you are having difficulty making a decision on how you should mark a candidate response contact your Team Leader for advice, or send the item to review.**

Section A				
No	Working	Answer	Mark	Notes
1	(a)(i) (ii) (b)	62 alternate angle 56	2 2	B1 (look for answers on diagram) B1 accept alternate or Z angles M1 for $180 - 2 \times 62$ A1 ft (look for answers on diagram)
2	Points $(-2, -3)$ $(-1, -1)$ $(0, 1)$ $(1, 3)$ $(2, 5)$	Straight line of grad 2 through $(0, 1)$	3	B3 for correct straight line from $(-2, -3)$ to $(2, 5)$ (B2 for 5 points plotted correctly <b>or</b> correct line from $(-1, -1)$ to $(1, 3)$ ) (B1 for 3 or 4 points plotted correctly <b>or</b> any line of gradient 2 <b>or</b> any line through $(0, 1)$ ) <b>or</b> for 3 points correctly calculated
3	(a)  (b)	$50.1264 - 43.1649 = 6.9615$ $\sqrt{6.9615} =$  2.6	2  1	B2 for 2.638465...accept 2.6384.... (B1 for 6.9615)  B1 ft
4	$75 \times 100 + \frac{1}{2}(100 - 30) \times (160 - 75)$ $7500 + 2975$ (=10475) "10475" $\times 3$	£31 425	5	M1 for $160 - 75 (= 85)$ or $100 - 30 (= 70)$ M1 for $75 \times 100$ <b>or</b> $75 \times 30$ <b>or</b> $75 \times 70$ <b>or</b> $\frac{1}{2} \times 70 \times 85$ (M2 for sight of 2975) M1 (dep) on one of the previous M1's for complete correct method to find area of complete field (=10475) M1 (ft if at least M1 earned) for "10475" $\times 3$ A1 cao
5	$\frac{1}{2}(180 - 120) = 30^\circ$	Angle $PQR = 30^\circ$ so $PQ$ is not a radius	2	M1 for angle between tangent and radius is $90^\circ$ <b>or</b> sight of right angle marked on diagram A1 for angle $PQR = 30^\circ$ not $20^\circ$ <b>or</b> angle $PQT = 100^\circ$ not $90^\circ$ <b>or</b> $QTR = 40^\circ$ not $60^\circ$
6		$4x(2x - 3y)$	2	B2 for $4x(2x - 3y)$ (B1 for $4(2x^2 - 3xy)$ <b>or</b> $x(8x - 12y)$ <b>or</b> $2x(4x - 6y)$ <b>or</b> $4x(2x - 3)$ <b>or</b> $4x(2 - 3y)$ )

Section A				
No	Working	Answer	Mark	Notes
7 (i) (ii)		$3^2 \times 5$ oe $2 \times 3^3 \times 5^2 \times 7$ oe	3	B1 accept as $3 \times 3 \times 5$ , 45 or in index form M1 for product that includes both $3^3$ (27) and $5^2$ (25) or for listing multiples of 315 and 1350 A1 for 9450 oe (SC B1 for 425250)
8	$3x + 6 = 3(x + 2)$ $x^2 - 4 = (x + 2)(x - 2)$	$\frac{3}{(x - 2)}$	3	M1 for $3(x + 2)$ M1 for $(x + 2)(x - 2)$ A1 cao

Section B				
No	Working	Answer	Mark	Notes
1	(a)	$12ef$	1	B1 cao
	(b)	$5(x + 3)$	1	B1 cao
	(c)	$8r + 9$	2	M1 for $2r + 6 + 6r + 3$ <b>or</b> $8r$ <b>or</b> 9 A1 cao
2	$\frac{147.6}{0.24} = \frac{14760}{24}$ $\begin{array}{r} 615 \\ 24 \overline{)147^3 6^{12} 0} \end{array}$	615	3	M1 for $14760 \div 24$ M1 for attempt at complete method, either division or cancelling of fraction or chunking method (needs to get to $6 \times x$ ) A1 cao SC B2 for 6.15 or digits 615 seen in working
3		$4n - 1$ oe  Not an odd number	2  1	B2 for $4n - 1$ oe (B1 for $4n + k$ ( $k$ could be zero)) B1 e.g. All terms in sequence are odd numbers or $4n = 413$ and 413 is not divisible by 4 oe
4	$10 \times 5 \times 8 (=400)$ “400” $\times 0.6$	240	4	M2 for $10 \times 5 \times 8 (=400)$ (M1 for two of 10, 5, 8 seen as part of a volume calculation) M1 for “400” $\times 0.6$ A1 cao
5	(a)	$4.31 \times 10^5$	1	B1 cao
	(b)	0.0062	1	B1 cao
6	(a)	1	1	B1 cao
	(b)	$\frac{1}{4}$ oe	1	B1 for $\frac{1}{4}$ or 0.25
7	$3x^2 + 3x - 5x - 5$	$3x^2 - 2x - 5$	2	B2 cao (B1 for 4 correct terms or 3 of 4 terms correct condoning incorrect signs)

Section B				
No	Working	Answer	Mark	Notes
8	$100x = 12.62626\dots$ $x = 0.12626\dots$  $99x = 12.5$	$\frac{125}{990}$ oe	3	M1 for 0.1262626... M1 for two decimals seen that, when subtracted, result in a terminating decimal A1 for $\frac{125}{990}$ oe (eg. $\frac{25}{198}$ )
9	$\frac{4}{x(x+3)} + \frac{5x}{x(x+3)}$	$\frac{5x+4}{x(x+3)}$	2	M1 for $\frac{4}{x(x+3)} + \frac{5x}{x(x+3)}$ or $4(x+3) + 5x(x+3)$ as numerator or $x(x+3)$ or $x(x+3(x+3))$ as denominator  A1