

# **Mathematics B (MEI) (Two Tier)**

General Certificate of Secondary Education **J519**

## **Mark Schemes for the Units**

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**June 2008**

**J519/MS/R/08**

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This mark scheme is published as an aid to teachers and students, to indicate the requirements of the examination. It shows the basis on which marks were awarded by Examiners. It does not indicate the details of the discussions which took place at an Examiners' meeting before marking commenced.

All Examiners are instructed that alternative correct answers and unexpected approaches in candidates' scripts must be given marks that fairly reflect the relevant knowledge and skills demonstrated.

Mark schemes should be read in conjunction with the published question papers and the Report on the Examination.

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Any enquiries about publications should be addressed to:

OCR Publications  
PO Box 5050  
Annesley  
NOTTINGHAM  
NG15 0DL

Telephone: 0870 770 6622  
Facsimile: 01223 552610  
E-mail: [publications@ocr.org.uk](mailto:publications@ocr.org.uk)

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## GCSE Mathematics B MEI Two Tier (J519)

### MARK SCHEME FOR THE UNITS

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# B291 Foundation – Modular Paper

## Section A

1.	(a) 5704	1		5
	(b) sixty thousand two hundred (and) forty three	1		
	(c) 5630	1		
	(d)(i) 7	1		
	(ii) 8 or 12	1		
2.	(a) R	1		4
	(b) P	1		
	(c) T	1		
	(d) any right angle marked unambiguously	1		
3.	(a)(i) 9421	1		4
	(ii) Put the largest no. first oe	R1		
	(b)(i) 7	1		
	(ii) Nearest square no. is 49	R1	49 or $7^2$ mentioned in explanation	
4.	(a) 174 – 182	2	B1 for 8.7 to 9.1 soi, M1 x 20 evaluated Or SC1 188-196	3
	(b) 68 - 72	1		
5.	(a) 5.5	2	M1 $2x = 5 + 6$ or better, or $x - 2.5 = 3$	4
	(b) $7c - d$ , final answer	2	B1 for $7c$ or $-d$ seen, or correct answer spoilt	
6.	(a) 12	1		4
	(b) 8 m <sup>2</sup>	2	M1 for $2 \times 4$	
		1		

7.	(a)(i) 7  (a)(ii) $(2+7+9+3+4) \div 5$ 5  Mark is more consistent, S range greater oe  Simon's mean is higher, very close, similar oe	<b>1</b>  <b>M1</b> <b>A1</b>  <b>1ft</b>  <b>1ft</b>		5
8.	(a) 0.12 oe  (b) 881.64	<b>1</b>  <b>1</b>		2
9.	2  3 5 8 8 3  0 4 6 7 4  1 2 3  Key correct	<b>B2</b>  <b>B1</b>	Allow B1 if one error or omission, or unordered	3
10.	$10t = v - u$ or $v/10 = u/10 + t$ $t = \frac{v - u}{10}$	<b>B1</b>  <b>B1ft</b>		2

## Section B

11.	(a) Kilometre	1	Accept abbreviations, ignore numbers	4	
	(b) gram	1			
	(c) metre	1			
	(d) litre	1			
12.	(a) 3600 isw	2	<b>M1</b> $\times 0.15$ or good attempt at 10% +5% <b>SC2</b> 20400 <b>B1</b> for 360 or 7200 or digits 144	6	
	(b) 1440	2			
	(c) 49 isw	2			Condone 0.49 . <b>M1</b> for $\times 0.175$ or full alternative method <b>SC2</b> £3.29
13.	(a) Tallies plus 6,3,3,1,7	1+1ft	Condone 1 error in tallies	7	
	(b) Correct heights	1ft			
	(c) 22	2			<b>M1</b> At least 3 heights added, or answer 20-24
	(d) Robin	1			
	(e) 0.8	1			
14.	(a) 10	1	<b>B1</b> for 21 seen or attempt at $-4$ and $\div 3$ in wrong order. Accept clear embedded answer	4	
	(b) -11	1			
	(c) 7	2			
15.	52	1	180° soi	2	
	Angles on a straight line (sum to 180°)	R1			
16.	(a) 60	B1		5	
	20	B1			
	(b) 4 hours	B1			
(c) A by £20	B1,B1				
17.	11.6(0)	1	<b>M1</b> for $\div 2.6$ soi	4	
	9.23	1ft			
	3.55	2			

18.	4.1 <sup>2</sup> + 5.3 <sup>2</sup> or 44.9 seen $\sqrt{4.1^2 + 5.3^2}$ 6.7(.....) 16.1(.....)	<b>M1</b> <b>depM1</b> <b>A1</b> <b>A1ft</b>	Dependent on both M marks	4
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# B293 Higher – Modular Paper

1	$\frac{86}{200} \times 100$ 43	M1 A1		2
2	2 [ 3 5 8 8 3 [ 0 4 6 7 4 [ 1 2 3 Key correct	B2 B1	Allow B1 if one error or omission or unordered.	3
3	Front correct Length correct	M1 A1	Any isometric drawing. All correct.	2
4a b	881.64 Uses 400, 20 and 80 100	B1 M1 A1		3
5a  b c	$2x - 14$ or $x - 7 = \frac{5}{2}$  $2x = 19$ or $x = \frac{5}{2} + 7$ 9.5 or 19/2 $4y < 24$  $y < 6$  $10t = v - u$ or $\frac{v}{10} = \frac{u}{10} + t$  $t = \frac{v - u}{10}$	B1  B1ft B1 B1 B1  B1ft	SC 1 for 6 seen.	7
6	Marks higher on average in science Marks more spread in science	B1 B1		2
7a  b	Converts to twelfths Evidence of $\frac{77}{12}$ or $\frac{17}{12}$  $6\frac{5}{12}$ oe  Deals with mixed numbers Inverts and multiplies or converts to eighths and divides.  $2\frac{4}{5}$ oe	M1 A1 A1  M1 M1  A1	At least one correct    At least one correct	6
8	Complete correct method 120	M1 A1		2
9a b	Multiplies by $2^2$ 200 Divides by $2^3$ 500	M1 A1 M1 A1		4



<b>10a</b>	Completes square or multiplies out $p = 4$ $q = 5$	<b>M1</b> <b>A1</b> <b>A1</b>		
<b>b</b>	$(x+4)^2 = -5$ cannot find square root of negative 5	<b>M1</b> <b>A1</b>	SC 1 for accurate use of formula to identify root of a negative.	<b>5</b>
<b>11a</b>	Uses $\pi \times 5.2^2$ 84.9 or 85.0 or 85	<b>M1</b> <b>A2</b>	Allow A1 for answers between 84.9 and 85	
<b>b</b>	Uses $\pi R^2 - \pi r^2$ Evidence of 120.7.....or 120.8 35.8 to 35.9	<b>M1</b> <b>B1</b> <b>A1</b>		<b>6</b>
<b>12a</b>	60 20	<b>B1</b> <b>B1</b>		
<b>b</b>	4 hours	<b>B1</b>		
<b>c</b>	A by £20	<b>B1,B1</b>		<b>5</b>
<b>13</b>	$5.3^2 + 4.1^2$ or 44.9 seen $\sqrt{(5.3^2 + 4.1^2)}$ 6.7..... 16.1....	<b>M1</b> <b>depM1</b> <b>A1</b> <b>A1ft</b>		<b>4</b>
<b>14a</b>	uses midpoints calculates $\sum fx = (6120)$ divides $\sum fx$ by 50 122.4	<b>M1</b> <b>M1</b> <b>M1</b> <b>A1</b>	Sum of products of frequency and 'their' midpoints ( within class interval ).	
<b>b</b>	$\frac{3}{50}$ oe	<b>B1</b>		<b>5</b>
<b>15a</b>	$p^{10}$	<b>B1</b>		
<b>b</b>	$2x^2 + 3xy - 10xy - 15y^2$ $2x^2 - 7xy - 15y^2$	<b>B2</b> <b>B1ft</b>	Allow B1 if one error or omission	<b>4</b>
<b>16a</b>	$\cos x = \frac{1.3}{3.2}$ uses inverse cosine	<b>M1</b> <b>M1</b> <b>A1</b>		
<b>b</b>	66 · .... $\frac{AC}{4.3} = \sin 62$ $4.3 \times \sin 62 = 3.8$	<b>M1</b> <b>A1</b>		<b>5</b>
<b>17</b>	Uses 1435 and 185 Divides height by sheets. 0.129	<b>B1</b> <b>M1</b> <b>A1</b>	Condone 0.1289..	<b>3</b>
<b>18</b>	Finds mode for any set of 5 integers Finds median for any set of 5 integers Calculates mean for any set of 5 integers Identifies counter example without error	<b>B1</b> <b>B1</b> <b>M1</b> <b>A1</b>		<b>4</b>

## List of Abbreviations

The following abbreviations are commonly found in GCSE Mathematics mark schemes.

- Where you see **cao** in the mark scheme it means **correct answer only**.
- Where you see **ft** in the mark scheme it means **follow through**.
- Where you see **oe** in the mark scheme it means **or equivalent**.
- Where you see **rot** in the mark scheme it means **rounded or truncated**.
- Where you see **seen** in the mark scheme it means that the mark is earned if that number or expression is seen anywhere in the answer space, including on the answer line, even if it is not in the method leading to the final answer.
- Where you see **soi** in the mark scheme it means **seen or implied**.
- Where you see **www** in the mark scheme it means **without wrong working**.
- Where you see **dep** in the mark scheme it means **dependent on**.

# Grade Thresholds

General Certificate of Secondary Education  
Mathematics B (MEI) (Specification Code J519)  
June 2008 Examination Series

## Component Threshold Marks

Component		Max Mark	a*	A	b	c	d	e	f	g
B291	Raw	72	N/A	N/A	N/A	56	47	38	30	22
	UMS	83	N/A	N/A	N/A	72	60	48	36	24
B293	Raw	72	69	56	43	31	19	13	N/A	N/A
	UMS	120	108	96	84	72	60	54	N/A	N/A

**OCR (Oxford Cambridge and RSA Examinations)**  
**1 Hills Road**  
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**CB1 2EU**

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