

Mark Scheme (Results)

Summer 2013

Edexcel Level 2 Award (ANM20)
Number and Measure
Paper 2A+2B

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If working is crossed out and still legible, then it should be given any appropriate marks, as long as it has not been replaced by alternative work.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

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

8 Use of ranges for answers

If an answer is within a range this is inclusive, unless otherwise stated.

Section A

PAPER: ANM20/2A					
Question		Working	Answer	Mark	Notes
1	(a)		-6	1	B1 cao
	(b)		+4	1	B1 for 4 or +4
2			202.9375	1	B1 for 202.9375
3			27, 36	3	M1 for $63 \div 7 (=9)$ or at least 3 multiples of 3:4 M1 for $3 \times "9"$ and $4 \times "9"$, or 9 multiples of 3:4 or 36,27 A1 cao
4	(a)		56	2	M1 for $25+24+7$ or correct definition of the perimeter A1 cao
	(b)		84	2	M1 for $\frac{1}{2} \times$ (two dimensions) A1 cao
5			310	2	M1 for 1.55×200 A1 cao
6	(a)		1.8	1	B1 for 1.8
	(b)		1024	1	B1 cao
	(c)		3072.3055	2	B2 cao (B1 for rounded answer)

PAPER: ANM20/2A				
Question	Working	Answer	Mark	Notes
7		60	2	M1 for $3 \times 4 \times 5$ oe A1 cao
8		42	2	M1 for 300×0.14 or $300 \times \frac{14}{100}$ oe A1 cao
9		11	2	M1 for 5×2.2 A1 cao
10		7 : 8	2	M1 for 14 : 16 or an expression with both 14 and 16 (oe) A1 cao
11		93.05	4	M1 for $30 \times 2.5(0)$ (=75) M1 for $(45-30) \times 2.75$ or 15×2.75 (=41.25) or 45×2.75 (=123.75) M1 for subtraction of 23.2(0) A1 cao SC B3 for 93.5

PAPER: ANM20/2A				
Question	Working	Answer	Mark	Notes
12		Completed Pie chart: 160° 120° 80°	4	M1 for $\frac{400}{900} \times 360$ or $\frac{300}{900} \times 360$ or $\frac{200}{900} \times 360$ A1 for at least one angle drawn accurately ($\pm 2^\circ$) or all angles calculated A1 for all angles drawn accurately ($\pm 2^\circ$) A1 (dep on M1) labels (not angles)
13		3.24	2	M1 for writing the two mixed fractions as decimals, or fraction method shown eg $\frac{81}{10} \times \frac{2}{5}$ oe A1 Accept as a fraction eg $3\frac{6}{25}, \frac{81}{25}$
14		15	3	M1 listing at least 4 factors of 60: 1, 2, 3, 4, 5, 6, 10, 12, 15, 20, 30, 60 or listing at least 4 factors of 75: 1, 3, 5, 15, 25, 75 (could be shown on a factor tree) Or for showing at least one common factor (not 1): 3 or 5 M1 for showing at least 4 factors of both 60 and 75 A1 cao NB: no marks for listing multiples

PAPER: ANM20/2A				
Question	Working	Answer	Mark	Notes
15		28.27.. cm ²	3	B1 for cm ² M1 for $\pi \times 3 \times 3$ or 9π oe A1 for 28.0-28.5
16		156	4	M1 for 20×12 (=240) M1 for 14×6 (=84) M1 for "240" – "84" A1 cao
17		10	3	M1 for 55-50 or sight of 5 M1 for $\frac{5}{50} \times 100$ or $10\% = 5$ A1 cao
18		628.3..	3	M1 for $\pi r^2 h$ M1 for $\pi \times 5 \times 5 \times 8$ A1 for 628-629

Section B

PAPER: ANM20/2B					
Question		Working	Answer	Mark	Notes
1	(a)		-3,-2,-1,3,5,6	1	B1 cao
	(b)		54.75	1	B1 cao
2	(a)		2.2	1	B1 cao
	(b)		1.6	1	B1 cao
3	(a)		200	2	M1 for division method shown eg 2.. seen or at least 10 multiples of 25 (oe) A1 cao
	(b)		976.3	2	M1 for correct subtraction method eg reduction of place values to allow for subtraction of 3 or 7 A1 cao
4			40	2	M1 for $\frac{80}{200} \times 100$ oe or $\frac{80}{200} = \frac{40}{100}$ oe A1 cao

PAPER: ANM20/2B					
Question		Working	Answer	Mark	Notes
5	(a)		$\frac{1}{4}$ of 80	3	M1 for $80 \div 4$ oe or $45 \div 3$ oe or 20 or 15 A1 for 20 and 15 A1 for conclusion: "1/4 of 80"
	(b)		$\frac{1}{5}$	2	M1 for $\frac{20}{100}$ oe A1 cao
6			1.50	3	M1 for $1.8(0) \div 6$ (=30) or 180×5 (=900) M1 for $1.8(0) \div 6 \times 5$ or " 30 " $\times 5$ (=150) or 1.5 A1 cao NB: methods marks can be used for working in pence or £
7			460-480	3	M1 for rounding at least two figures eg two of 8, 30, 0.5, 29 M1 for rounding and one operation eg 16, 60, 240, 232, 58 A1 any number 460-480

PAPER: ANM20/2B

Question		Working	Answer	Mark	Notes																																
8			8.208	3	<p>M1 for a complete method with relative place value correct. Condone 1 multiplication error, addition not necessary. M1 (dep) for addition of all the appropriate elements of the calculation. A1 cao</p> <table style="margin-left: 20px;"> <tr> <td style="padding-right: 20px;">342</td> <td>24</td> </tr> <tr> <td style="padding-right: 20px;"><u>×24</u></td> <td><u>×342</u></td> </tr> <tr> <td>6840</td> <td>7200</td> </tr> <tr> <td><u>1368</u></td> <td>960</td> </tr> <tr> <td>8208</td> <td>48</td> </tr> <tr> <td></td> <td>8208</td> </tr> </table> <p>M1 for a complete grid with not more than 1 multiplication error, addition not necessary. M1 (dep) for addition of all the appropriate elements of the calculation. A1 cao</p> <table border="1" style="margin-left: 20px; text-align: center;"> <tr> <td></td> <td>3</td> <td>4</td> <td>2</td> <td></td> </tr> <tr> <td></td> <td>0 / 6</td> <td>0 / 8</td> <td>0 / 4</td> <td>2</td> </tr> <tr> <td>8</td> <td>1 / 2</td> <td>1 / 6</td> <td>0 / 8</td> <td>4</td> </tr> <tr> <td></td> <td>2</td> <td>0</td> <td>8</td> <td></td> </tr> </table>	342	24	<u>×24</u>	<u>×342</u>	6840	7200	<u>1368</u>	960	8208	48		8208		3	4	2			0 / 6	0 / 8	0 / 4	2	8	1 / 2	1 / 6	0 / 8	4		2	0	8	
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PAPER: ANM20/2B

Question		Working	Answer	Mark	Notes																				
					<table border="1"> <tr> <td>300</td> <td>40</td> <td>2</td> <td></td> </tr> <tr> <td>600</td> <td>800</td> <td>40</td> <td>20</td> </tr> <tr> <td>0</td> <td></td> <td></td> <td></td> </tr> <tr> <td>120</td> <td>160</td> <td>8</td> <td>4</td> </tr> <tr> <td>0</td> <td></td> <td></td> <td></td> </tr> </table> <p>6000+800+40+1200+160+8=8.208 M1 for sight of a complete partitioning method, condone 1 multiplication error, addition not necessary. M1 (dep) for addition of all the appropriate elements of the calculation. A1 cao</p>	300	40	2		600	800	40	20	0				120	160	8	4	0			
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0																									
120	160	8	4																						
0																									
9	(a)		$3\frac{5}{12}$	3	<p>M1 for changing both fractions to a common denominator with at least one matching numerator M1 for changing both fractions to a common denominator with matching numerators and subtract or $\frac{41}{12}$ oe A1 cao</p>																				
	(b)		$8\frac{1}{2}$	3	<p>M1 attempts to write as improper fractions eg $\frac{2 \times 2 + 1}{2}$ or $\frac{3 \times 5 + 2}{5}$ M1 for changing both fractions to improper fractions and multiplication eg $\frac{5}{2} \times \frac{17}{5}$ or $\frac{85}{10}$ A1 oe as a mixed number</p>																				

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