Pearson Edexcel

Mark Scheme (Results)

January 2020

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

Edexcel and BTEC Qualifications

Edexcel and BTEC qualifications are awarded by Pearson, the UK's largest awarding body. We provide a wide range of qualifications including academic, vocational, occupational and specific programmes for employers. For further information visit our qualifications websites at www.edexcel.com or www.btec.co.uk. Alternatively, you can get in touch with us using the details on our contact us page at www.edexcel.com/contactus.

Pearson: helping people progress, everywhere

Pearson aspires to be the world's leading learning company. Our aim is to help everyone progress in their lives through education. We believe in every kind of learning, for all kinds of people, wherever they are in the world. We've been involved in education for over 150 years, and by working across 70 countries, in 100 languages, we have built an international reputation for our commitment to high standards and raising achievement through innovation in education. Find out more about how we can help you and your students at: www.pearson.com/uk

January 2020
Publications Code ANM20_2A_2001_MS

Contents

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If working is crossed out and still legible, then it should be given any appropriate marks, as long as it has not been replaced by alternative work.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
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)		6.2	1	B1 cao
(b)		116.5	1	B1 cao
2 (a)		5	1	B1 cao Accept +5
(b)		−3	1	B1 cao
(c)		4	1	B1 cao Accept +4
3 (a)		39.312	1	B1 cao
(b)		28.27	1	B1 cao
4		16.5	2	M1 for 7.5 × 2.2 A1 cao
5		120	2	M1 for 20 + 48 + 52 A1 cao

PAPER: ANM20/2A				
Question	**Working**	**Answer**	**Mark**	**Notes**
6 (a)		15 625	1	B1 cao
(b)		21	1	B1 cao
(c)		5184	2	M1 for 81 or for 64 A1 cao
7		90	2	M1 for a method to calculate 15% either directly or by partitioning eg 600 × 0.15 oe or 10% as 60 and 5% as 30 **and** 60+30 or 10% as 60 and 1% as 6 **and** 60+(5×6) **or** an answer of 690 or 510 A1 cao
8		35.75	2	M1 for 286 ÷ 8 or for 35 or 36 A1 cao
9		4	2	M1 for 160 ÷ (5 × 8) or 160 ÷ "40" **or** an embedded answer eg 5× 8 × 4 = 160 A1 cao

PAPER: ANM20/2A				
Question	**Working**	**Answer**	**Mark**	**Notes**
10		383.75	4	M1 for 10.80 × 40 (=432) **or** 16.20 × 5 (=81) M1 for 26.65 + 102.60 (=129.25) **or** subtraction of 26.65 and 102.60 from 432 or 81 M1 for complete method eg "432" + "81" – "129.25" or "513" – "129.25" A1 cao
11		$3\frac{3}{5}$	2	M1 for correctly writing fractions as improper fractions eg $\frac{9}{2} \div \frac{5}{4}$ or $\frac{9}{2} \times \frac{4}{5}$ or correct conversion into decimals with correct operation shown eg 4.5 ÷ 1.25 A1 for $\frac{36}{10}$ or $\frac{18}{5}$ or $3\frac{3}{5}$ or 3.6 oe
12		260	3	M1 for 8 × 5 ÷ 2 (=20) or for 8 × 5 × 13 (=520) M1 for a complete method eg "8 × 5 ÷ 2" × 13 or "8 × 5 × 13" ÷ 2 A1 cao

PAPER: ANM20/2A					
Question	**Working**	**Answer**	**Mark**	**Notes**	
13	24 = 2×2×2×3 90 = 2×3×3×5 HCF is 2 × 3 =	6	3	M1 for listing the factors of 24 (at least 4 from 1, 2, 3, 4, 6, 8, 12, 24) **or** 90 (at least 4 from 1, 2, 3, 5, 6, 9, 10, 15, 18, 30, 45, 90) M1 for showing one common factor (1, 2, 3, 6) **or** both complete lists A1 cao	M1 for factor trees showing at least two prime factors of both numbers (eg 2,2,2,3 and 2,3,3,5) **or** one complete factor tree for 24 or 90 M1 for showing two complete factor trees for 24 and 90 **or** showing 2×2×2×3 or 2×3×3×5
14		72	3	M1 for 1200 × 3 ÷ 100 oe (=36) or 1236 or 1200 × 2 ÷ 100 oe (=24) or 1224 M1 for 1200 × 3 × 0.02 oe or 1272 or 1128 A1 cao	
15		146 to 146.5	4	M1 for 15 × 15 (= 225) M1 for $\pi \times 5^2$ (=78.5398…) M1 for "225" − $\pi \times 5^2$ A1 for 146 to 146.5	

PAPER: ANM20/2A				
Question	**Working**	**Answer**	**Mark**	**Notes**
16		3	3	M1 for 2266 – 2200 (=66) or $\frac{2266}{2200}$ (=1.03) or 0.97 M1 for $\frac{"66"}{2200}\times 100$ oe or 0.03 × 100 oe "1.03" -1 oe or (1 – 0.97) × 100 A1 cao
17		8 18	3	M1 for finding a scaling factor eg $\frac{16}{120}$, $\frac{6}{45}$ (=0.133..) , $\frac{120}{16}$, $\frac{45}{6}$ (=7.5), or uses angles as sf eg $\frac{120}{60}$ (=2) or $\frac{135}{45}$ (=3) oe or $16\times\frac{360}{120}$ or 16 × 3 (=48) A1 for Green as 8 A1 for Yellow as 18

PAPER: ANM20/2A				
Question	**Working**	**Answer**	**Mark**	**Notes**
18		139	4	M1 for division of the shape into at least one rectangle and at least one triangle (or completes to give a rectangle) M1 for an appropriate rectangular area eg 8×20 (=160) or 6×8 (=48) or 6×3 (=18) or 5×20 (=100) or 14×5 (=70) **or** a triangular area eg 0.5×3×14 (=21) M1 for a complete method eg 20×8 – 0.5×3×14 (=160−21) or 6×3 + 0.5×3×14 + 5×20 (=18+21+100) or 6×8 + 0.5×3×14 + 14×5 (=48 + 21 + 70) or 6×3 + 5×6 + 5×14 + 0.5×3×14 (=18 + 30 + 70 +21) A1 cao

Section B

PAPER: ANM20/2B				
Question	**Working**	**Answer**	**Mark**	**Notes**
1		−5,−4,−3, −1,3,5,6	1	B1 cao
2 (a)		523.12	2	M1 for correct alignment of digits ready for calculation with two operations performed correctly eg 7.6+470−16.83 (=460.77) or 7.6+62.35–16.83 (=53.12) or 7.6+62.35+470 (=539.95) or 62.31 + 470 – 16.83 (=515.48) NB operations can occur at any stage of a partitioned calculation but must be equivalent to those shown above A1 cao

<table>
<tr><th colspan="5">PAPER: ANM20/2B</th></tr>
<tr><th>Question</th><th>Working</th><th>Answer</th><th>Mark</th><th>Notes</th></tr>
<tr><td>2 (b)</td><td></td><td>185.71</td><td>2</td><td>M1 for evidence of correctly set up method, which may be by traditional methods, by a bones method or using grids, or partitioning; or correct multiplication seen eg carry 2 from 3×7, 7 lots of 26.53 added

2653
7 ×
18571

<table>
<tr><td></td><td>2</td><td>6</td><td>5</td><td>3</td><td>×</td></tr>
<tr><td>1</td><td>1 / 4</td><td>4 / 2</td><td>3 / 5</td><td>2 / 1</td><td>7</td></tr>
<tr><td></td><td>8</td><td>5</td><td>7</td><td>1</td><td></td></tr>
</table>

<table>
<tr><td>×</td><td>2000</td><td>600</td><td>50</td><td>3</td></tr>
<tr><td>7</td><td>14000</td><td>4200</td><td>350</td><td>21</td></tr>
<tr><td>or</td><td>140</td><td>42</td><td>3.5</td><td>.21</td></tr>
</table>

A1 cao</td></tr>
<tr><td>3</td><td></td><td>$\frac{17}{30}$</td><td>1</td><td>B1 for $\frac{17}{30}$ or any equivalent fraction.</td></tr>
<tr><td>4</td><td></td><td>£2.70 or 270p</td><td>3</td><td>M1 for 240 ÷ 8 (=30) or 2.40 ÷ 8 (=0.3) or 240 × 9 (=2160) or 2.40 × 9 (=21.6)

M1 for a complete method eg “30” × 9 (=270) or “0.3” × 9 (=2.7(0)) or “2160” ÷ 8 (=270) or “21.6” ÷ 8 (=2.7(0)) or 2.4(0) + “0.3” or 240 + “30”

A1 for £2.70 or 270p</td></tr>
</table>

PAPER: ANM20/2B				
Question	**Working**	**Answer**	**Mark**	**Notes**
5		48, 84	2	M1 for a first step eg 132 ÷ (4+7) (=12) oe **or** for three other ratios which are multiples of 4 : 7 A1 for 48 and 84 in any order
6		3 : 2	2	M1 for 24 : 16 oe or 12 : 8 oe **or** 2 : 3 or 2 and 3 A1 cao
7		1/4 of 192	3	M1 for 69 ÷ 3 × 2 (=46) or for 192 ÷ 4 (=48) oe A1 for 46 and 48 A1 ft (dep on M1 and on two figures shown) for conclusion "1/4 of 192"
8		136	3	M1 for $\frac{15}{100} \times 160$ (=24) oe eg 10% as 16 and 5% as 8 **and** 16+8 or any alternative partitioning method M1 for 160 – "24" or for 160 × 0.85 oe or 160 × 1.15 (=184) oe A1 cao

PAPER: ANM20/2B				
Question	**Working**	**Answer**	**Mark**	**Notes**
9 (a)		$6\frac{7}{12}$	2	M1 for use of common denominator with at least one correct numerator eg $\frac{2}{12}+\frac{5}{12}$ or $\frac{38}{12}+\frac{41}{12}$ oe or $\frac{12+30}{72}$ oe A1 for $6\frac{7}{12}$ oe eg $\frac{79}{12}$, $\frac{474}{72}$
(b)		$\frac{14}{45}$	1	B1 or any other equivalent fraction
10	$\frac{30\times 20}{0.5}=\frac{600}{0.5}$ $\frac{31\times 20}{0.5}=\frac{620}{0.5}$	1200 or 1240	3	M1 for appropriate rounding of at least two figures to 30, 31, 20 or 0.5 (which could be evidenced through partial calculation) M1 (dep M1) for rounding and one simple operation correctly performed using appropriately rounded figures eg 600, 620, 60, 62, 40 A1 for 1200 or 1240 using suitable approximations
11		35	2	M1 for $\frac{210}{600}$ (=0.35) oe or $\frac{210}{6}$ or a complete partitioning method eg 60 is 10%, 30 is 5%, etc. A1 cao

PAPER: ANM20/2B				
Question	**Working**	**Answer**	**Mark**	**Notes**
12		$3\frac{17}{40}$	3	M1 for use of a common denominator with at least one correct numerator eg $\frac{25}{40} - \frac{8}{40}$ or $\frac{37}{8} - \frac{6}{5} = \frac{185}{40} - \frac{48}{40}$ A1 for subtraction of fractions eg $\frac{137}{40}$ or $\frac{17}{40}$ oe A1 cao

Pearson Education Limited. Registered company number 872828
with its registered office at 80 Strand, London, WC2R 0RL, United Kingdom