Mark Scheme (Results)

January 2023

Pearson Edexcel Awards
In Number and Measure (ANM20) Paper 2A

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If working is crossed out and still legible, then it should be given any appropriate marks, as long as it has not been replaced by alternative work.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

Question		Working	Answer	Mark	Notes
1	(a)		12.7	1	B1 cao
	(b)		53.4	1	B1 cao
2			312.12	1	B1 cao
3	(a)		31	1	B1 cao
	(b)		5832	1	B1 cao
	(c)		2592	2	M1 for 81 or 32 A1 cao
4			300	2	M1 for 40 × 7.5 NB: M0 if any ambiguity of squaring from mis-use of units etc. A1 cao
5	(a)		80	2	M1 for 16 + 30 + 34 A1 cao
	(b)		240	2	M1 for 16 × 30 ÷ 2 A1 cao

Question		Working	Answer	Mark	Notes
6	(a)		(+) 11	1	B1 cao
	(b)		(+) 4	1	B1 cao
	(c)		−36	1	B1 cao
7			120	2	M1 for a method to calculate 24% of 500 either directly or by partitioning eg 500 × 0.24 oe or 20% as 100 **and** 4% as 20 with 100+20 **or** 10% as 50 **and** 1% as 5 with 50+50+5+5+5+5 **or** any equivalent method **or** 120 seen, then used as part of an extended method eg 620 or 380 A1 cao
8			6.5	2	M1 for 14.3 ÷ 2.2 A1 cao
9			300	3	M1 for 6000 × 2 ÷ 100 oe (=120) or 6120 or 6000 × 2.5 ÷ 100 oe (=150) or 6150 or 2 × 2.5 ÷ 100 (=0.05) M1 for 6000 × 2 × 0.025 oe or 6300 or 5700 A1 cao
10			665	2	M1 for 350 × 1.90 oe A1 cao

Question	Working	Answer	Mark	Notes
11		$1\dfrac{1}{5}$	2	M1 for correctly writing fractions as improper fractions eg $\dfrac{9}{2} \div \dfrac{15}{4}$ or $\dfrac{9}{2} \times \dfrac{4}{15}$ or $4.5 \div 3.75$ A1 for $\dfrac{36}{30}$ or $\dfrac{12}{10}$ or $\dfrac{6}{5}$ or $1\dfrac{1}{5}$ or 1.2 oe
12		405.35	4	M1 for 11.50×35 (=402.5) or 17.25×8 (=138) M1 for 27.05 + 108.10 (=135.15) or subtraction of both or for "402.5" + "138" (=540.5) M1 for complete method eg "402.5" + "138" – "135.15" oe A1 cao
13		95 to 95.1	3	M1 statement $\pi \times r \times r$ oe or sight of $\pi \times 11 \times 11$ (=380…) M1 for $\pi \times 5.5^2$ or $\pi \times 30.25$ A1 for an answer in the range 95 to 95.1
14		28 50	3	M1 for finding a scaling factor eg $\dfrac{56}{140}$, $\dfrac{10}{25}$ (=0.4), $\dfrac{140}{56}$, $\dfrac{25}{10}$ (=2.5) oe **or** uses angles as sf eg $\dfrac{140}{70}$ (=2) or $\dfrac{125}{25}$ (=5) oe **or** $56 \times \dfrac{360}{140}$ or $10 \times \dfrac{360}{25}$ A1 for red as 28 A1 for blue as 50

Question	Working	Answer	Mark	Notes
15		90	3	M1 for listing at least 3 multiples of one number (eg 3 from 15, 30, 45, 60, 75, 90 **or** 3 from 18, 36, 54, 72, 90) M1 for factor trees showing at least two prime factors of both or one complete factor tree for 15 **or** 18 M1 for listing at least 3 multiples of each number. M1 for complete factor trees for 15 **and** 18 or showing 3×5 **and** 2×3×3 (Could be shown on a Venn diagram) or for 5 × 3 × 2 × 3 A1 cao
16		104	4	M1 for division of the shape into at least one rectangle **and** one triangle (eg by dividing shape up using lines, or division of whole 15 by 12 rectangle into at least one rectangle **and** one triangle); M1 for an appropriate rectangular area eg 8×5 (=40) or 8×3 (=24) or 8×8 (=64) or 4×3 (=12) or 3×12 (=36) or 15×12 (=180) or 5×4 (=20) or 4×7 (=28) or 4×12 (=48) **or** a triangular area eg 7 × 8 ÷ 2 (=28) M1 for a complete method eg "28" + "64" + "12" or "180" – "28" – "48" A1 cao
17		12	3	M1 for 550 – 484 (=66) or $\dfrac{484}{550}$ (=0.88) or $\dfrac{484}{5.5}$ (=88) oe M1 for $\dfrac{"66"}{550}$ or 1 – "0.88" (=0.12) or 100 – "88" A1 cao

Question	Working	Answer	Mark	Notes
18		2307 to 2310	3	M1 $\pi \times 7^2$ (=153.9 to 154) or $\pi \times r^2 \times h$ M1 for $\pi \times 7^2 \times 15$ A1 for answer in the range 2307 to 2310 or 735π