OCR
Oxford Cambridge and RSA

F

Date – Morning/Afternoon

GCSE MATHEMATICS

J560/01 Paper 1 (Foundation Tier)

PRACTICE PAPER MARK SCHEME

Duration: 1 hours 30 minutes

MAXIMUM MARK 100

DRAFT

Subject-Specific Marking Instructions

1. **M** marks are for using a correct method and are not lost for purely numerical errors.
   A marks are for an accurate answer and depend on preceding **M** (method) marks. Therefore **M0 A1** cannot be awarded.
   B marks are independent of **M** (method) marks and are for a correct final answer, a partially correct answer, or a correct intermediate stage.
   SC marks are for special cases that are worthy of some credit.

2. Unless the answer and marks columns of the mark scheme specify **M** and **A** marks etc, or the mark scheme is 'banded', then if the correct answer is clearly given and is not from wrong working **full marks** should be awarded.

   Do not award the marks if the answer was obtained from an incorrect method, ie incorrect working is seen and the correct answer clearly follows from it.

3. Where follow through (**FT**) is indicated in the mark scheme, marks can be awarded where the candidate's work follows correctly from a previous answer whether or not it was correct.

   Figures or expressions that are being followed through are sometimes encompassed by single quotation marks after the word *their* for clarity, eg FT 180 × (*their* '37' + 16), or FT 300 – $\sqrt{}$(*their* '$5^2 + 7^2$'). Answers to part questions which are being followed through are indicated by eg FT 3 × *their* (a).

   For questions with FT available you must ensure that you refer back to the relevant previous answer. You may find it easier to mark these questions candidate by candidate rather than question by question.

4. Where dependent (**dep**) marks are indicated in the mark scheme, you must check that the candidate has met all the criteria specified for the mark to be awarded.

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

   - **figs 237**, for example, means any answer with only these digits. You should ignore leading or trailing zeros and any decimal point eg 237000, 2.37, 2.370, 0.00237 would be acceptable but 23070 or 2374 would not.
   - **isw** means **ignore subsequent working** after correct answer obtained and applies as a default.
   - **nfww** means **not from wrong working**.
   - **oe** means **or equivalent**.
   - **rot** means **rounded or truncated**.
   - **seen** means that you should award the mark if that number/expression is seen anywhere in the answer space, including the answer line, even if it is not in the method leading to the final answer.
   - **soi** means **seen or implied**.

6. In questions with no final answer line, make no deductions for wrong work after an acceptable answer (ie **isw**) unless the mark scheme says otherwise, indicated by the instruction 'mark final answer'.

7. In questions with a final answer line following working space,

   (i) if the correct answer is seen in the body of working and the answer given on the answer line is a clear transcription error allow full marks unless the mark scheme says 'mark final answer'. Place the annotation ✓ next to the correct answer.

   (ii) if the correct answer is seen in the body of working but the answer line is blank, allow full marks. Place the annotation ✓ next to the correct answer.

   (iii) if the correct answer is seen in the body of working but a completely different answer is seen on the answer line, then accuracy marks for the answer are lost. Method marks could still be awarded. Use the M0, M1, M2 annotations as appropriate and place the annotation × next to the wrong answer.

8. In questions with a final answer line:

   (i) If one answer is provided on the answer line, mark the method that leads to that answer.

   (ii) If more than one answer is provided on the answer line and there is a single method provided, award method marks only.

   (iii) If more than one answer is provided on the answer line and there is more than one method provided, award zero marks for the question unless the candidate has clearly indicated which method is to be marked.

9. In questions with no final answer line:

   (i) If a single response is provided, mark as usual.

   (ii) If more than one response is provided, award zero marks for the question unless the candidate has clearly indicated which response is to be marked.

10. When the data of a question is consistently misread in such a way as not to alter the nature or difficulty of the question, please follow the candidate's work and allow follow through for **A** and **B** marks. Deduct 1 mark from any **A** or **B** marks earned and record this by using the MR annotation. **M** marks are not deducted for misreads.

11. Unless the question asks for an answer to a specific degree of accuracy, always mark at the greatest number of significant figures even if this is rounded or truncated on the answer line. For example, an answer in the mark scheme is 15.75, which is seen in the working. The candidate then rounds or truncates this to 15.8, 15 or 16 on the answer line. Allow full marks for the 15.75.

12. Ranges of answers given in the mark scheme are always inclusive.

13. For methods not provided for in the mark scheme give as far as possible equivalent marks for equivalent work. If in doubt, consult your Team Leader.

14. Anything in the mark scheme which is in square brackets […] is not required for the mark to be earned, but if present it must be correct.

MARK SCHEME

Question			Answer	Marks	Part marks and guidance	
1	(a)		12	1 1AO2.3a		
	(b)		2.5 rectangles shown	1 1AO2.3b		
	(c)		9	1 1AO1.3b		
	(d)		83	2 2AO1.3b	**M1** for *their* '12 + 10 + 22 + 16 + 10 + 13'	
2	(a)		Hexagon	1 1AO1.1		
	(b)		8	1 1AO1.1		
	(c)		Sketch of isosceles triangle with equal sides indicated	1 1AO2.3b		
3			0.6, 6.06, 6.106, 6.601, 60.6	2 2AO1.3a	**M1** for 4 in correct order	
4	(a)	(i)	(3, 2)	1 1AO2.3b		
		(ii)	(-4, -2)	1 1AO2.3b		
	(b)		Point plotted at (-2, 0)	1 1AO2.3b		
5	(a)		12 correct outcomes listed	2 2AO1.3a	**B1** for 9 correct outcomes	
	(b)		$\frac{3}{12}$ **oe**	1 1AO1.3a		

Question			Answer	Marks	Part marks and guidance	
6			Two from: Unequal width bars Frequency/profit scale not linear Vertical axis doesn't start at 0	**2** **2AO2.5b**	**B1** for one reason	
7	**(a)**		a^5	**1** **1AO1.2**		
	(b)		4	**2** **2AO1.3a**	**M1** for $3x = 12$ or for $x = \frac{k}{3}$ after $3x = k$	
	(c)		67	**2** **2AO1.3a**	**M1** for 40 or 27	
8	**(a)**	**(i)**	185	**1** **1AO1.1**		
		(ii)	2.086	**1** **1AO1.1**		
	(b)		$\frac{5}{12}$	**1** **1AO3.1a**		
	(c)	**(i)**	3 : 1	**1** **1AO1.2**		
		(ii)	20 and 12	**3** **3AO1.3a**	**M1** for $32 \div 8$ **M1** for *their* '4' × 5 or *their* '4' × 3	
	(d)		193.2[0]	**3** **3AO1.3a**	**M2** for 0.84×230 OR **M1** for 0.16×230 **soi** by 36.8[0] **M1** for $230 -$ *their* 36.8	
9	**(a)**	**(i)**	27 150	**1** **1AO1.3a**		
		(ii)	27 000	**1** **1AO1.3a**		

Question			Answer	Marks	Part marks and guidance	
	(b)		984.75, 984.85	**2** 2AO1.3a	**B1** for one correct	
	(c)	**(i)**	8.56×10^8	**1** 1AO1.3a		
		(ii)	0.00431	**1** 1AO1.3a		
	(d)		8	**2** 2AO1.3a	**M1** for 3	
10	**(a)**		1, 3, 5 or 15	**1** 1AO1.1		Ignore correct extras
	(b)		$2^3 \times 3^2 \times 5$ **oe**	**2** 2AO1.3b	**M1** for any correct factor pair	FT previous error, may be on a tree
	(c)		[0]8:02 [am]	**4** 1AO1.3b 2AO3.1d 1AO3.2	**M2** for 12 as LCM **M1** for 7:50 plus *their* LCM OR **M1** for listing 3 times with 6 minute intervals **M1** for listing 3 times with 4 minute intervals	
11	**(a)**	**(i)**	$(5 - 3) \times 12 \div 4 = 6$	**1** 1AO2.1a		Condone additional brackets if answer unaffected
		(ii)	$6 \times (4 + 3)^2 - 5 = 289$	**1** 1AO2.1a		Condone additional brackets if answer unaffected
	(b)		10.63	**2** 2AO1.3a	**M1** for 10.625	
12			96	**4** 2AO1.3b 2AO3.1d	**B3** for 32 and 40 Or **B2** for 32 or 40 Or **M2** for a common denominator and one correct numerator Or **M1** for a common denominator	Accept equivalent methods

Question			Answer	Marks	Part marks and guidance	
13			Bridget scored a higher percentage Dep on 70% and 68 – 68.1% with full working	**3** 1AO1.3a 2AO2.2	**B2** for 70% and 68% **oe** decimal Or **B1** for 70 or 68 **oe** decimal OR **M2** for attempt at 28 ÷ 40 and 32 ÷ 47 Or **M1** for attempt at 28 ÷ 40 or 32 ÷ 47	
14	**(a)**		$^{-}1,\ 3$	**1** 1AO1.3a		
	(b)		Correct ruled line from $x = 0$ to 4	**2** 1AO2.3a 1AO2.3b	**M1** for 4 points correctly plotted FT *their* table	
	(c)		$y = {}^{-}2.5x + 7$ **oe**	**3** 2AO2.3a 1AO2.3b	**B2** for $^{-}2.5x$ Or **B1** for $^{-}2.5$ or 7 Or **M1** for up/along for any 2 valid points	
15			$[a =]$ 5.5[0] $[c =]$ 3[.00]	**5** 1AO1.3a 1AO2.3b 2AO3.1d 1AO3.3	**M4** for correct method to eliminate 1 variable Or **M3** for correct method to eliminate 1 variable, allow 1 arithmetic error Or **M2** for 2 correct equations with a common coefficient Or **M1** for $6a + 2c = 39$ or $5a + 3c = 36.50$	
16			$3r = 10k^2 - 4r$ $3r + 4r = 10k^2$ $7r = 10k^2$ $\frac{7r}{10} = k^2$	**M1** **M1** **M1** **M1** 4AO2.2		
17	**(a)**		$\begin{pmatrix} 2 \\ 3 \end{pmatrix}$	**1** 1AO2.3a		

Question			Answer	Marks	Part marks and guidance	
	(b)		$\begin{pmatrix}3\\1\end{pmatrix}$	**1** **1** **1AO1.2** **1AO1.3a**		
18			40	**6** **1AO1.3b** **5AO3.1d**	**M5** for (1 – ([1] × [0].8[0] × [0].75)) × 100 Or **M4** for 1 – ([1] × [0].8[0] × [0].75) Or **M3** for [1] × [0].8[0] × [0].75 or [0].6 Or **M2** for [0].8[0] and [0].75 Or **M1** for [0].8[0] or [0].75	Accept correct alternative methods e.g. **M1** for 20% of 100 [= 20] **M1** for 100 – 20 [= 80] **M1** for 25% of 80 = 80 ÷ 4 [= 20] **M1** for 80 – 20 [= 60] **M1** for 100 – 60
19			0.64 **oe**	**5** **1AO1.3b** **4AO3.1d**	**M4** for 0.4 × 0.7 + (1 − 0.4) × 0.6 Or **M3** for fully correct tree diagram with probabilities Or **M2** for partially correct tree diagram with one set of correct branches Or **M1** for correctly labelled tree diagram with missing or incorrect probabilities	Accept correct equivalent methods and equivalent percentages and fractions for decimals Accept working with expected frequencies
20			77.8[1…] or 77.82	**6** **1AO1.3a** **1AO1.3b** **1AO2.1b** **3AO3.1d**	**M5** for $\sqrt{60^2+40^2} - 10 + \frac{1}{2}\times\pi\times10$ Or **M4** for $\sqrt{60^2+40^2}$ and $\frac{1}{2}\times\pi\times10$ Or **M3** for 60^2+40^2 or 5200 and ($\frac{1}{2}\times\pi\times10$ or 15.7[…]) Or **M2** for $\sqrt{60^2+40^2}$ or 72.1[1…] or $\frac{1}{2}\times\pi\times10$ or 15.7[…] Or **M1** for 60^2+40^2 or 5200 or 10π	

Question			Answer	Marks	Part marks and guidance	
21			226[.2] or 72π	6 1AO1.3b 1AO2.3a 4AO3.1d	**B3** for 678.58 or 216π OR **M1** for 9π **M1** for *their* '9π' × 24 **soi** AND **B1** for 113.1 or 113.097 or 36π **M1** for *their* '113.1' × 4	

Assessment Objectives (AO) Grid

Question	AO1	AO2	AO3	Total
1(a)	0	1	0	1
1(b)	0	1	0	1
1(c)	1	0	0	1
1(d)	2	0	0	2
2(a)	1	0	0	1
2(b)	1	0	0	1
2(c)	0	1	0	1
3	2	0	0	2
4(a)(i)	0	1	0	1
4(a)(ii)	0	1	0	1
4(b)	0	1	0	1
5(a)	2	0	0	2
5(b)	1	0	0	1
6	0	2	0	2
7(a)	1	0	0	1
7(b)	2	0	0	2
7(c)	2	0	0	2
8(a)(i)	1	0	0	1
8(a)(ii)	1	0	0	1
8(b)	0	0	1	1
8(c)(i)	1	0	0	1
8(c)(ii)	3	0	0	3
8(d)	3	0	0	3
9(a)(i)	1	0	0	1
9(a)(ii)	1	0	0	1
9(b)	2	0	0	2
9(c)(i)	1	0	0	1
9(c)(ii)	1	0	0	1
9(d)	2	0	0	2
10(a)	1	0	0	1
10(b)	2	0	0	2
10(c)	1	0	3	4
11(a)(i)	0	1	0	1
11(a)(ii)	0	1	0	1
11(b)	2	0	0	2
12	2	0	2	4
13	1	2	0	3
14(a)	1	0	0	1
14(b)	0	2	0	2
14(c)	0	3	0	3
15	1	1	3	5
16	0	4	0	4
17(a)	0	1	0	1
17(b)	2	0	0	2
18	1	0	5	6
19	1	0	4	5
20	2	1	3	6

21	1	1	4	**6**
Totals	**50**	**25**	**25**	**100**