



Annual Examinations for Middle Schools 2022

YEAR 8	MATHEMATICS	MARKING SCHEME
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Notes for Marking of Scripts

Types of Marks

Method marks are awarded for knowing a correct method of solution and attempting to apply it. Method marks cannot be lost for arithmetic mistakes. They can only be awarded if the method used would have led to the correct answer had not an arithmetic mistake been made. Unless otherwise stated, any valid method not specified in the marking scheme is to be accepted and marked accordingly.

There are two types of Method marks: **M** marks and **(M)** marks.

- **M marks** are only awarded if method is seen.
- **(M) marks** are awarded even when a correct answer is given and no work is shown.

There are two types of Accuracy marks: **A** marks and **B** marks.

- **A** marks are accuracy marks given for correct answer only (c.a.o.).
 - * Incorrect answers, even though nearly correct, score no marks.
 - * Accuracy marks are also awarded for incorrect answers which are correctly followed through (f.t.) from an incorrect previous answer, **provided that f.t. is indicated in the marking scheme.**
 - * No Method marks **M/(M)** or Accuracy marks **A** are awarded when a wrong method leads to a correct answer.
 - * When a question is assigned **M** and **A** marks and students present a correct answer without any working, only **A** marks are awarded.
- **B** marks are accuracy marks awarded for specific results or statements independent of the method used.

Misreading

Method marks can still be earned (unless that part of the question is trivialised) but the final Accuracy marks are lost.

Crossed out working

An answer or working that is crossed out and not replaced is marked as if it were not crossed out. If the answer or working is replaced, then the crossed out answer or working is ignored and should not be considered for marking.

Units

In general, missing or inaccurate units are not penalised unless otherwise indicated in the marking scheme.

Other

- Incorrect working or statement following a correct answer is ignored.
- Marks are not sub-divisible; no half marks may be awarded.
- Other abbreviations used:
 - * o.e. (or equivalent)
 - * e.e.o.o. (each error or omission)
- Markers are advised to indicate the **M**, **(M)**, **A** or **B** marks awarded in the body of the script and then write their total in the margin. The total mark for each question should be written in the table included at the top of page 1 of the main paper. This measure facilitates the moderation of papers.

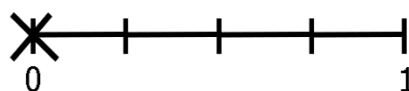
NON-CALCULATOR PAPER (Total: 25 Marks)

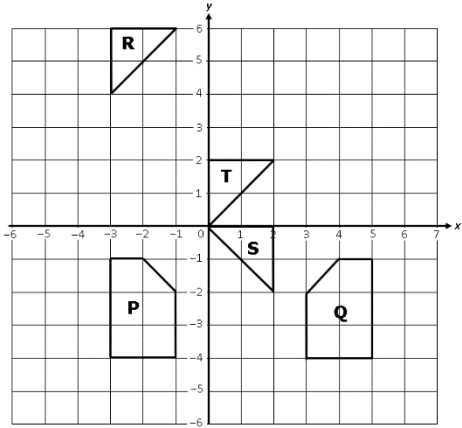
Ques.		Requirements	Mark		Additional Guidance
1		0.465, 4.65, 46.5, 465, 4650	B1 B1	2	First and last numbers correct. All numbers correct.
2	(a)	3, 12, 18 in any order	B1	3	All numbers correct.
	(b)	2, 3, 5, 17 in any order	B1		
	(c)	12, 18 in any order	B1		
3	(a)	15	B1	5	(f.t.) for incorrect 97 in (b)
	(b)	$500 - 15 = 485$ $\frac{485}{5} = 97$	M1 A1		
	(c)	$500 \times 0.10 = \text{€}50$ $97 - 50 = \text{€}47$	M1 A1		
4		$a = 65^\circ$ $b = (180 - 42) \div 2$ $b = 69^\circ$	B1 (M)1 A1	3	
5		$2.5 \times 2 = 5 \text{ cm}^2$ $5 \times 2 = 10 \text{ cm}^2$ $2.5 \times 6 \times 2 = 30 \text{ cm}^2$ $2 \times 6 \times 2 = 24 \text{ cm}^2$ Total SA = $10 + 30 + 24$ 64 cm^2	(M)1 (M)1 M1 A1	4	(M)1 for area of any one face (M)1 for area of remaining faces
6	(a)	$\frac{3}{5}$ and $\frac{9}{15}$	B1	8	In any order. Both correct.
	(b)	30% and 0.3	B1		In any order. Both correct.
	(c)	2	B1		
	(d)	$1\frac{9}{10} - \frac{6}{10}$ $1\frac{3}{10}$	M1 A1		Accept answer as improper fraction.
	(e)	$\frac{1}{8}$	B1		
	(f)	$6 \times \frac{2}{3}$ 4	M1 A1		

MAIN PAPER (Total: 75 Marks)

Ques.		Requirements	Mark		Additional Guidance
1	(a)	Warmer	B1	4	
	(b)	6	B1		Accept -6
	(c)	34	B1		Accept -34
	(d)	12	B1		Accept -12

2	(b)	a = 120° Vertically opp. angles are equal b = 60° Angles on a str. line add up to 180° c = 90° Interior angles add up to 180° d = 120° Interior angles add up to 180° or Corresponding angles are equal or Alternate angles are equal	B1 A1 M1 A1 M1 A1 M1	7	Both correct (f.t.) from angle a, if interior angles stated														
3	(a)	3.5 × 3.5 12.25 cm ²	(M)1 A1	6	(f.t.) from (a) and (b)														
	(b)	$\frac{3.5 \times 4}{2}$ 7 cm ²	M1 A1																
	(c)	7 × 4 = 28 cm ² 28 + 12.25 = 40.25 cm ²	(M)1 A1																
4	(a)	$\frac{85}{100} \times 500 = 425$ g 500 + 425 925 g	M1 M1 A1	6	Accept other valid explanations and workings.														
	(b)	€7.00 ÷ 2 = €3.50 €10.65 ÷ 3 = €3.55 Offer A	M1 M1 B1																
5	(a)	Construction of triangle Accurate construction	M1 A1	5	Arcs clearly seen														
	(b)	Construction of circle, radius 4 cm Arcs of radius 4 cm Accurate hexagon	M1 M1 A1																
6	(a)	Prime factorisation 2 ³ × 3 × 7	M1 A1	4															
	(b)	Using common multiples, prime factorisation or division method 90	M1 A1																
7	(a)	<table border="1"><tr><td>Pattern Number</td><td>1</td><td>2</td><td>3</td><td>4</td><td>...</td><td>7</td></tr><tr><td>Number of Hexagons</td><td>3</td><td>5</td><td>7</td><td>9</td><td>...</td><td>15</td></tr></table>	Pattern Number	1	2	3	4	...	7	Number of Hexagons	3	5	7	9	...	15	B3	4	– 1 (e.e.o.o.)
	Pattern Number	1	2	3	4	...	7												
Number of Hexagons	3	5	7	9	...	15													
(b)	Odd	B1																	
8	(a)	$\frac{2}{7} \times 420$ 120 vanilla cakes	M1 A1	7	(f.t.) from (a) and (b) Both answers correct														
	(b)	$\frac{35}{100} \times 420$ 147 strawberry cakes	M1 A1																
	(c)	420 – (120 + 147) = 153 153 ÷ 9 = 17 68 lemon cakes, 85 chocolate cakes	M1 M1 A1																

9	(a)	1 2 4	B1 B1 B1	5															
	(b)	(i)				B1													
		(ii)				B1													
10	(a)	$23 \times 2 = 46$ $46 + 8 = 54$ burgers	(M)1 A1	6															
	(b)	$T = (30 \times 5) + 20$ T = 170 minutes	(M)1 A1																
	(c)	Attempt to add the sides $P = 2x + 4y$	M1 A1																
11	(a)	(i) $9a + 3b$ (ii) $5x + 20$	B1 B1	5	Both correct.														
	(b)	(i) $2k - 6 = 26$ or $k - 3 = 13$ $k = 16$ (ii) $x = 33$	M1 A1 B1																
12	(a)	9 a.m.	B1	5															
	(b)	1 hour	B1		Accept also 60 minutes.														
	(c)	11.30 a.m.	B1																
	(d)	Line A $\Rightarrow$ Journey to grandma's house Line C $\Rightarrow$ Journey from grandma's house	B1 B1		Accept other valid explanations.														
13	(a)	<table><thead><tr><th>INPUT</th><th>OUTPUT</th></tr></thead><tbody><tr><td>7</td><td>6</td></tr><tr><td>3</td><td>2</td></tr><tr><td>- 3</td><td>- 4</td></tr><tr><td>5</td><td>4</td></tr><tr><td>1</td><td>0</td></tr><tr><td>- 1</td><td>- 2</td></tr></tbody></table>	INPUT	OUTPUT	7	6	3	2	- 3	- 4	5	4	1	0	- 1	- 2	B2	5	- 1 e.e.o.o.
	INPUT	OUTPUT																	
	7	6																	
	3	2																	
	- 3	- 4																	
5	4																		
1	0																		
- 1	- 2																		
(b)	- 1	B1																	
(c)	199	B1																	
(d)	474	B1																	

14	(a)	translation $\begin{pmatrix} 3 \\ -4 \end{pmatrix}$	B1 B1	6	
					
	(b)	Correct orientation of reflected image. Accurate reflection in $x = 1$	M1 A1		Do not deduct marks for not labelling as Q and S.
	(c)	Correct orientation Accurate rotation.	M1 A1		

End of Marking Scheme