KULLEĠĠ SAN BENEDITTU
Secondary School, Kirkop

Track 3

HALF YEARLY EXAMINATION – 2017/2018

YEAR 9 **MATHEMATICS** **MARKING SCHEME**

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 trivialized) 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 (25 marks)

Quest.		Requirements	Mark	Additional Guidance	Total
1	a)	1.18×400 €472	M1 A1	Accept other valid methods	4
	b)	$200 \div 1.25$ 160	M1 A1	Accept other valid methods	
2	a)	i) 300,000,000 ii) 3×10^8	B1 B1	f.t. o.e.	3
	b)	0.000325	B1		
3	a)	$8n^3$	B1		4
	b)	$4 - 2(-0.5 - 3 \times 2)$ $4 - 2(-6.5)$ 17	M1 (M1) A1		
4		$C = 2\pi r$ $= 2 \times 3 \times 22.5$ $= 135$ cm 135×10 1350 cm 14 m	 M1 M1 M1 A1	o.e. f.t.	4
5	a)	$120 \div 10 = 12$ litres of petrol needed $\frac{12 \times 6}{5}$ €14.40	 M1 A1	 f.t.	6
	b)	$T = \frac{D}{S} = \frac{120}{80}$ 1.5 hrs 9:17 + 1 hr 30 mins 10:47 a.m.	M1 (M1) A1		
	c)	Deborah arrives later.	B1		
6	a)	$1\frac{3}{10} + 3\frac{1}{5} + 3\frac{1}{5}$ $\frac{13}{10} + \frac{32}{10} + \frac{32}{10}$ $\frac{77}{10} = 7\frac{7}{10}$	 M1 A1	o.e.	4
	b)	$3\frac{5}{8} \times 1\frac{3}{5}$ $\frac{29}{8} \times \frac{8}{5}$ $\frac{29}{5} = 5\frac{4}{5}$	 M1 A1		

Main Paper (75 marks)

Quest.		Requirements	Mark	Additional Guidance	Total
1	a)	i) 80 ii) 0.5 iii) 2	B2	−1 e.e.o.o.	3
	b)	20	B1	f.t.	
2	a)	3 : 5	B1		5
	b)	3 + 5 = 8 parts €1600 ÷ 8 = €200 each part Anna = €600 Maureen = €1000	 (M1) A1 A1	Accept other valid methods f.t.	
	c)	3 : 8 960 : ? $\frac{960 \times 8}{3}$ €2560	 M1 A1	Accept other valid methods	
3	a)	$100I = PRT$ $\frac{100I}{PR} = T$	M1 A1		4
	b)	$\frac{100 \times 262.50}{5000 \times 1.5}$ 3.5 years	M1 A1	 f.t.	
4	a)	i) $8(2x + 3y)$ ii) $mn^2(7mn + 1)$	B1 B2	All correct B1 for partially correct	9
	b)	i) $\frac{3m^5}{5k^3}$ ii) $\frac{2x(2x+1)}{2x+1}$ $2x$	(M1) A1 (M1) A1	M1 for valid attempt at simplifying expression M1 for correct factorisation	
	c)	$x^2 - 3x - 7x + 21$ $x^2 - 10x + 21$	M1 A1		
5	a)	$(n - 2) \times 180$ $(6 - 2) \times 180$ 720 $4x + 5x + 4x + 4x + 102 + 108 = 720$ $17x = 510$ $x = 30$	(M1) M1 M1 M1 A1	M1 for either formula or substitution o.e.	7
	b)	180 – 170 = 10° 360 ÷ 10 = 36 sides	(M1) A1		

6	a)	i) $\frac{(0\times4)+(1\times3)+(2\times2)+(3\times2)+(4\times0)+(5\times1)+(6\times1)}{13}$ $24 \div 13 = 1.8461\ldots$ 1.8 ii) $\frac{n+1}{2} = \frac{13+1}{2} = 7^{th}$ crate 1 iii) Supplier A = 0	M1 M1 A1 M1 A1 B1	Do not penalise students if they do not fill in table.	8
	b)	Supplier A The mean, median and mode are all lower than those of Supplier B which means that there are less rotten peaches in the crates bought from Supplier A.	B1 B1	No marks to be awarded for filling in of table Accept any other correct reason	
7	a)	5, 9	B1	Both correct	6
	b)	$2n + 1$	B2	B1 for partially correct	
	c)	$2n + 1 = 79$ $2n = 78$ $n = 39$	M1 A1		
	d)	(C) =2*C1+1	B1		
8	a)	i) $\pi \times 2^2$ 12.566371… ≈ 12.57 ii) $\pi \times 8^2 = 201.06193\ldots$ 201.06… – (2 × 12.566…) 175.929019…. ≈175.93	M1 A1 M1 M1 A1	f.t.	8
	b)	$\frac{12.56\ldots}{175.\ldots} \times 100$ 14.285… 14%	M1 M1 A1	f.t.	
9	a	<table><tr><th>x</th><th>x^3</th><th>$x^3 - x$</th><th>L/S</th></tr><tr><td>2</td><td>8</td><td>8 – 2 = 6</td><td>S</td></tr><tr><td>3</td><td>27</td><td>27 – 3 = 24</td><td>S</td></tr><tr><td>4</td><td>64</td><td>64 – 4 = 60</td><td>L</td></tr><tr><td>3.9</td><td>59.319…</td><td>59.319… – 3.9 = 55.419…</td><td>L</td></tr><tr><td>3.8</td><td>54.872…</td><td>54.872… – 3.8 = 51.072…</td><td>S</td></tr></table> $x = 3.8$	M2 A1	M1 for identifying that answer is between 3 and 4. M1 for identifying that answer is either 3.8 or 3.9	7
	b	Multiply by 10 (LCM) on both sides $15x – 25 = 2x – 8$ $13x = 17$ $x = 1\frac{4}{13}$	M1 M1 M1 A1	Accept other valid methods	

10	a)	$360 \div 5 = 72°$ Student draws angles of 72° at O. Student joins points to form pentagon. Labeling	(M1) M1 M1 A1		8
	b)	4.2 cm (± 0.2 cm)	B1		
	c)	Perimeter of ABCDE is $4.2 \times 5 = 21$ cm Perimeter of P is $6 \times 100{,}000$ cm 600,000 : 21 ≈ 1 : 30,000 or choice A)	M1 M1 B1	for conversion	
11	a)	i) $h^2 = 15^2 + 6.9^2$ $h = \sqrt{272.61}$ $h = 16.510\ldots$ $h = 16.5$ ii) $6.9^2 = 5^2 + a^2$ $47.61 = 25 + a^2$ $\sqrt{22.61} = a$ $4.7549\ldots = a$ $4.8 = a$	M1 M1 A1 M1 M1 A1		9
	b)	180 – (90 + 25) 65° Interior angles add up to 180°	M1 A1 B1	Accept other valid methods	