

KULLEĠĠ SAN BENEDITTU

Secondary School, Kirkop

HALF YEARLY EXAMINATION – 2016/2017

YEAR 8 Levels 7-8

MATHEMATICS

MARKING SCHEME

Aids for Marking of Scripts

Types of Marks

- **M**(ethod) 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. In general a correct method is implied by a correct answer and therefore **when a correct answer is given and no work is shown, no method marks are lost.**
- **A**(ccuracy) marks are 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 mark scheme.** No method (M) or accuracy (A) marks are awarded when a wrong method leads to a correct answer.
- **B** marks are accuracy marks awarded for specific results or statements independent of the method used.

Misreading

M marks can still be earned (unless that part of the question is trivialized) but the final A 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.

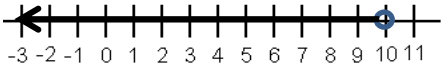
Units

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

Other

- Incorrect working or statements following a correct answer are 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, 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		$\begin{array}{r} 2\overline{)88} \\ 2\overline{)44} \\ 2\overline{)22} \\ 11\overline{)11} \\ 1 \\ 2 \times 2 \times 2 \times 11 \end{array}$	M1 A1	2	o.e.
2	a) i ii iii iv	0.125 0.018 0.223 $\dot{3}$ 0.3	B2	4	(-1 e.e.o.o)
	b)	0.018, 0.125, 0.223 $\dot{3}$, 0.3	B2		B1 (smallest) B2 (all correct) (f.t)
3		$5y + 5 - 3y + 6$ $= 2y + 11$	M1 M1 A1	3	Expansion of brackets Simplifying
4	a)		B1	3	
	b) i ii	Carmen 10 is not included in the range <	B1 B1		
5	a)	$21 + 20 + 21 + 18 + 22 + 21 + 22 = 145$ $145 \div 7 = 20.71\dots$ 20.7	M1 A1	4	
	b)	21°C	B1		
	c)	4°C	B1		
6	a)	A fraction with the numerator smaller than the denominator	B1	4	o.e.
	b)	$\frac{4}{4} - \frac{3}{4} = \frac{1}{4}$ $3 + \frac{1}{5} + \frac{1}{4} = 3 + \frac{4}{20} + \frac{5}{20} = 3\frac{9}{20}$	M1 M1 A1		M1 for correct denominator
7	a) i ii iii	- 8 11 - 7	B1 B1 B1	5	
	b)	$56 + 242$ $= 298 \text{ metres}$	M1 A1		
		Total marks		25	

Main Paper: (Total: 75 Marks)

Ques.		Requirements	Mark		Additional Guidance
1	a)	$80 : 2^4 \times 5$ $120 : 2^3 \times 3 \times 5$ $HCF = 2^3 \times 5 = 40$	M1 M1 A1	7	Seen or implied Seen or implied
	b)	$30 = 2 \times 3 \times 5$ $45 = 3 \times 3 \times 5$ $LCM = 2 \times 3 \times 3 \times 5 = 90$ mins = 1½ hours 8.30 + 1.30 At 10 am	M1 M1 M1 A1		o.e.
2	a)	$\frac{10 \times 3}{2}$ $= \frac{30}{2}$ $= 15 \quad \text{or}$ $\frac{15 \times 3}{2} = 22.5$	M1 M1 A1	5	Accept 23
	b)	$24.628..$ ≈ 24.6	M1 A1		
3	a)	2	B1	3	
	b)	1 or 81	B1		
	c)	1 or 3	B1		
4	a)	$\frac{3}{16}$ or 0.1875	B1	4	Accept both
	b)	$\frac{64}{250}$ $\frac{32}{125}$ or 0.256	M1 A1		
	c)	8	B1		
5	a)	$x = 70^\circ$ Angles on a straight line add up to 180° $y = 70^\circ$ Corresponding angles are equal $z = 110^\circ$ Interior angles between parallel lines add up to 180°	B1 B1 B1 B1 B1	8	Accept any other valid reason

	b)	$a = 80^\circ$ The sum of two interior angles in a triangle is equal to the opposite exterior angle	B1 B1		
6	a)	$7(3m - 2n + 5)$	M1 A1	7	Give M1 for any correct step in the method Accept any other valid method
	b) i	$2x = 21 + 5$ $2x = 26$ $x = 26 \div 2$ $x = 13$	M1 A1		
	ii	$12x + 8 = 68$ $12x = 68 - 8$ $12x = 60$ $x = \frac{60}{12}$ $x = 5$	M1 M1 A1		
7	a)	$\frac{2}{7} \times 3500$ $= \text{€}1000$	M1 A1	5	
	b)	$3500 - 1000 = 2500$ $2500 \div 5$ $= \text{€}500$	M1 M1 A1		
8	a)	$\frac{120}{200} \times 100 = 60\%$ $100 - 60$ $= 40\%$	M1 M1 A1	6	Accept any other valid method Accept any other valid method
	b)	$\frac{20}{100} \times \frac{12000}{1} = 2400$ $12000 - 2400$ $= \text{€}9600$	M1 M1 A1		
9	a)	36	B1	8	1 mark for each correct angle
	b)	sunbathing	B1		
	c)	Walking - 80° , Skiing - 100° , Cycling - 70° , Sun bathing - 110° Correct drawing of angles Correct labelling	B4 B1 B1		
10	a)	$4x + 2$	B1	5	
	b)	$7x - 4$	B1		

	c)	$4x + 2 = 7x - 4$ $2 + 4 = 7x - 4x$ $6 = 3x$ $\frac{6}{3} = x$ $x = 2$	M1 M1 A1																							
11		$\frac{17.5}{100} \times \frac{80}{1} = 14$ $80 + 14$ $= \text{€}94$	M1 M1 A1	3	Accept any other valid method																					
12	a)		B1	6																						
	b)	Number of circles 2, 4, 6, 8, ..., 20 Number of stars 1, 1, 1, 1, ..., 1 Total shapes 3, 5, 7, 9, ..., 21	B3		(-1 e.e.o.o.)																					
	c)	$n\text{th term} = n \times 2$ or $2n$	M1 A1																							
13	a)	Subtracting to get range 22	M1 A1	8																						
	b)	<table><tr><th>Age (in years)</th><th>Tally</th><th>Freq.</th></tr><tr><td>$15 < x \leq 20$</td><td> </td><td>2</td></tr><tr><td>$20 < x \leq 25$</td><td> </td><td>8</td></tr><tr><td>$25 < x \leq 30$</td><td> </td><td>6</td></tr><tr><td>$30 < x \leq 35$</td><td> </td><td>9</td></tr><tr><td>$35 < x \leq 40$</td><td> </td><td>2</td></tr><tr><td></td><td>Total</td><td>27</td></tr></table>	Age (in years)		Tally	Freq.	$15 < x \leq 20$		2	$20 < x \leq 25$		8	$25 < x \leq 30$		6	$30 < x \leq 35$		9	$35 < x \leq 40$		2		Total	27	B4	Award B3 for any correct 3 frequency numbers. Award B1 for correct total
Age (in years)	Tally	Freq.																								
$15 < x \leq 20$		2																								
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	c)	Bar chart completed correctly	B2	All bars correct (f.t.) (-1 e.e.o.o.)																						