



KULLEĠĠ SAN BENEDITTU

Secondary School, Kirkop

HALF YEARLY EXAMINATION – 2016/2017

FORM 4 TRACK 2

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 (20 marks – 1 mark each)

QUESTION 1	QUESTION 2	QUESTION 3	QUESTION 4
8504	$2 \times 2 \times 3 \times 3$ o.e.	a^1 or a	399
QUESTION 5	QUESTION 6	QUESTION 7	QUESTION 8
C	0.002358	C	$-5p - 4$
QUESTION 9	QUESTION 10	QUESTION 11	QUESTION 12
8	$1\frac{1}{10}$ or $\frac{11}{10}$	$8x(y - 2)$	$\frac{4}{5}$
QUESTION 13	QUESTION 14	QUESTION 15	QUESTION 16
18	$1\frac{1}{3}$ or $\frac{4}{3}$	$\frac{2}{3}$	5.5
QUESTION 17	QUESTION 18	QUESTION 19	QUESTION 20
48	A number from 41, 43 and 47	2000	24

MAIN PAPER (80 marks)

Que.	Requirements	Mark	Additional Guidance
1	a 6	B1	
	b $6.5 \text{ cm} \times 6.5 \text{ cm}$ 42.25×6 253.5	M1 M1 A1	
2	a i) $q^0 = 1$ $p q^0 = p$ ii) $8 \times a^{21}$	M1 A1 B2	B1 for “8” and B1 for “ a^{21} ” or other valid methods
	b $968 = 2 \times 2 \times 2 \times 11 \times 11$ $x = 3$; $w = 2$	M1 A1	
3	a Use of calculator 600,000 6×10^5	M1 A1 A1	
	b $30,000,000 + 0.02$ $30,000,000.02$	M1 A1	
	c $6 \times 10^5 \div 30,000,000.02$ 0.02	M1 A1	

4	a	All points and measurements marked properly	B1	4	
	b	$\cos Q = \frac{1.5}{5.6}$ $\cos Q = 0.2678 \dots$ $Q = \cos^{-1} 0.2678$ $Q = 74.4632 \dots$	M1 M1 A1		Accept 74 or more accurate
5	a	16:15 – 07:30 8 hours 45 minutes 525 minutes	M1 A1	7	
	b	$45 + 15 + 15$ 75 minutes = 1 hour 15 minutes	M1 A1		
	c	$525 : 75$ $21 : 3$ $7 : 1$	M1 M1 A1		Simplification of at least 1 step
6	a	$8 \times 80 = 640$ $640 \div 32$ 20	M1 M1 A1	8	
	b	i) $10.5 \div 0.007$ 1500 ii) 1500 iii) Divides 1500 by 3 and multiplies by 2 1000	M1 A1 A1 M1 A1		f.t. f.t.
7	a	i) $3p + 7$ ii) $52 = 3p + 7$ $45 = 3p$ $p = 15$	M2 M1 A1	10	o.e. f.t.
	b	$k + 1 = 4d$ $\frac{k + 1}{4} = d$	M1 A1		
	c	$-12x + 15$	B2		-1 e.e.o.o.
	d	$\frac{2(3x + 2)}{2(2 - 4x)}$ $\frac{(3x+2)}{(2-4x)}$ o.e.	M1 A1		

8	a	$FH^2 = 12.5^2 - 8.5^2$ $FH = \sqrt{84}$ $9.16515... \approx 9.2$	M1 M1 A1	8	
	b	$FK^2 = 15.4^2 - 8.5^2$ $FK = \sqrt{164.91}$ $12.8417... \approx 12.8$	M1 M1 A1		
	c	$12.84.... - 9.165.....$ $3.676.....$	M1 A1		f.t. Do not penalise rounding
9	a	Correct diagram	M2	8	
	b	11; 14; 17; 20	B2		B1 for every 2 correct entries
	c	$3n + 2$	B2		o.e.
	d	$3(10) + 2$ 32	M1 A1		f.t.
10	a	i) $12 \times 12 = 144$	B1	11	
		ii) $0.5 \times 3.5 \times 3.5$ $6.125 \approx 6.1$	M1 A1		
		iii) $\pi \times 3^2$ $28.27433... \approx 28.3$	M1 A1		
	b	$4 \times 6.125 = 24.5$ $144 - 24.5 - 28.27433...$ $91.2256 \approx 91.2$	M1 M2 A1		f.t.
	c	$91.2256... \times 4.2$ $383.1478...$	M1 A1		f.t. Rounding not penalised
11	a	$4 + 3 + 6 + 2$ 15	M1 A1	7	
	b	$4 + 3 = 7$	B1		
	c	Correct labelling of x and y axes Correct bars in histogram	M1 M3		-1 e.e.o.o.