DIRECTORATE FOR QUALITY AND STANDARDS IN EDUCATION
Department of Curriculum Management
Educational Assessment Unit

Track 2

Annual Examinations for Secondary Schools 2015

FORM 5 MATHEMATICS TRACK 2 MARKING SCHEME

Notes 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 marking 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 trivialised) 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 was 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, 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)

1	2	3	4	5	6	7	8	9	10
3.8×10^4	479.52	12	e.g. 7×4	400	A or −1	1200	6.54	B or 9 cm	$^2/_3$

11	12	13	14	15	16	17	18	19	20
$^1/_3$	100 (o.e.)	3	50	−27	$^3/_{10}$ (o.e.)	5	9990	8	$^4/_5$ (o.e.)

MAIN PAPER (80 marks)

Que.		Requirements	Mark		Additional Guidance
1	a	$p(2p - q)$	B1	2	
	b	$\frac{2p - q}{q}$	B1		
2		Substitutes values into equation correctly 937 500 000 000 9.375×10^{11}	M1 M1 A1	3	
3	a	560 = 112% Valid method used to find profit 60	M1 M1 A1	5	Seen or implied e.g. divides by 112 and multiplies by 12
	b	Valid method used to find selling price. 575	M1 A1		e.g. multiples cost price by 115 and divides by 100 f.t. for incorrect 500 in (a)
4	a	$\pi r^2 h$	B1	6	Seen or implied
	b	Radius = 5.5 Substitutes values into formula correctly. 1710.60	M1 M1 A1		
	c	$r^2 = \frac{V}{\pi h}$ $\sqrt{\frac{V}{\pi h}}$	M1 A1		
5	a	∠CBE = 60°, ∠ of equilateral triangle ∠ABC = 90°, ∠ of square ∴∠ABE = 150°	B1 B1	6	1 mark awarded for both statements, including reasons
	b	EB = EC (sides of equilateral triangle) AB = DC (sides of square) ∠ABE = ∠DCE = 150° (proved in (a)) Triangles congruent (SAS)	B1 B1 B1 B1		No marks awarded if reason is not given

Que.		Requirements	Mark		Additional Guidance
6	a	Valid method used to find gradient. 0.5	M1 A1	8	e.g. divides change in y by change in x
	b	$2y = x + 4$	B2		o.e.
	c	$2y = x + 12$	B2		o.e.
	d	10 7	B1 B1		
7	a	$p + q = 420$ $10p + 15q = 5400$	B1 B1	6	o.e. o.e.
	b	Valid method used to solve equations. 180	M3 A1		e.g. by eliminating one of the variables
8	a	Larger semicircle correctly drawn. Smaller semicircles correctly drawn.	M1 M1	6	
	b	12.566… 12.566… 25.132… 25.1	M1 M1 M1 A1		Seen or implied Seen or implied Seen or implied
9	a	Not correct Valid reason given	B1 B1	6	e.g. square root of fractions are larger than original fraction
	b	Not correct Valid reason given	B1 B1		e.g. 2 is prime and even.
	c	Correct Valid reason given	B1 B1		e.g. the product of two negative numbers is positive
10	a	228 38 20, 25, 26, 36, 39, 82 31 62	M1 A1 M1 A1 B1	8	Seen or implied
	b	Valid reason given	B1		e.g. ‘mean’ is exaggerated by outlier
	c	No Valid reason given	B1 B1		e.g. all the values are different
11	a	$QR = \frac{8}{tan37}$ 10.616… 10.62	M1 M1 A1	8	
	b	$PR = \frac{8}{tan25}$ 17.156… 17.156…− 10.616… 6.540… 6.54	M1 M1 M1 M1 A1		

Que.		Requirements	Mark		Additional Guidance
12	a	(i) Valid reason given	B1	8	e.g. angle in a semicircle is a right angle
		(ii) 64	B1		
		64	B1		
	b	(i) $\angle DAE = \angle BCE$ ($\angle$s in same segment)	B1		Award one mark if one reason is given
		$\angle ADE = \angle CBE$ ($\angle$s in same segment)	B1		Award second mark if two other reasons are given.
		$\angle DEA = \angle BEC$ (vertically opposite $\angle$s)			
		Triangles similar (AAA)	B1		
		(ii) Valid method used	M1		e.g. multiplies 4 by 1.5
		6 cm	A1		
13	a	30	B1	8	
	b	36	B1		
		54	B1		
		144	B1		
		108	B1		
		2 correctly drawn angles	B1		
		All angles correctly drawn	B1		
		Correct labelling	B1		