GCSE

Mathematics A

General Certificate of Secondary Education **GCSE 1962**

Mark Schemes for the Components

January 2007

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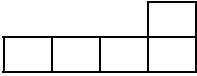
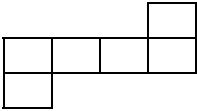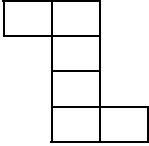# CONTENTS
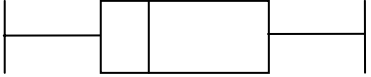
General Certificate of Secondary Education

Mathematics A - 1962

MARK SCHEMES FOR THE COMPONENTS

Mark Scheme 1962/03
January 2007

1.	(a)(i) 5
	  (ii) 31
	  (iii) 23
	
	(b)(i) one or more of 2, 3, 5 or 7
	  (ii) 8 cao
	  (iii) 2 cao
	  (iv) 4 cao
		1
		2
		1
		
		1
		1
		1
		1
			B1 for 15 seen
			
			No wrong values

2.	(a) 23.2 to 24.8 (b) 123º to 127º	2 1	**B1** for 5.8 to 6.2 seen **Or M1** for *their* AB x 4
3.	(a) 19 (b)(i) 23, 29 (look back after 29,36) (ii) +5, +6 oe	2 2 1	**M1** for repeated addition of 4 soi **B1** for 23 or x, x+6 +1,+2,+3 etc or Add **1 more** each time oe

4.	(a) 60
	   Line and either angles or 180
	
	(b) 125 – (a)
	   Triangle and either angles or 180
	
	(c) 55
	   alternate angles
		1
		1
		
		/ 1
		1
		
		1
		1
			
			Nothing incorrect
			
			Nothing incorrect
			Or exterior angle of a triangle
			
			Allow Z angles

5.	(a) 5 correct points plotted (b) 68 to 74 at 5 29 to 35 at 25 (c) £ using 18 and their ruled line	2 1 / 1	**B1** for 3 correctly plotted ± ½ small square horiz/vert Ruled, straight line Their value ± 1
6.	(a) 55.35 (b) 5535 (c) 1230	1 1 1	

7.	F	2	**M1** for correct shape with one error [i.e. move, delete or add one square to get correct answer]
	P	2	**M1** for correct shape with one error [as above]
	or		

8.	(a) $\frac{3}{10}$ oe	2	**M1** for $\frac{x}{10}$ or '3 out of 10' etc
	(b) 20 x $\frac{3}{5}$ soi	M1	
	20 x $\frac{4}{5}$ soi	M1	
	12 or 16	A1	12 or 16 may imply the M marks
	28 cao	A1	

9.	*Allow embedded answers if not contradicted*		
	(a)(i) 20	1	**M1** for correct first step
	(ii) 2 www	3	**And M1 (indep)** for correct second step
	(b) X √ X √ √	2	**B1** for three correct. Mark blank, ⩕ etc as wrong answer.

10.	(a)(i) 5 soi	1	Allow answer of 250(g)
	(ii) 75 or 15× *their* (i)	/ 1	
	(b) £5.20	3	**M2** for 0.8 x 6.5 oe soi by 5.2 **Or M1** for 0.2 x 6.5 soi by 1.3(0) Or 10%=65p **and** 20%=2x65p oe
	(c) 625.5 or 625.49(9….)	1	
	624.5(0)	1	

	(d) 20, 12, 8	3	**M2** for $\frac{40}{10}$ x 5 (or 3 or 2) oe **Or M1** for $\frac{40}{10}$ or 4 **OrSC2** for 2 values in correct positionwww **Or SC1** for 20 in correct position
11.	(a) 5a + (1)b final answer	2	**B1** for 5a or (+)(1)b seen
	(b) 12 – 15x final answer	2	**B1** for 12 or -15x seen
	(c) $\frac{v-3}{10}$ final answer	2	**M1** for v – 3 = 10t or $\frac{v}{10}$ = t + $\frac{3}{10}$
12.	Perp. bisector of AB with compasses (at 5cm ± 2mm ; 90º ± 2º)	2	**M1** for 'correct' attempt with compasses **Or B1** for correct without compasses
	Angle bisector with compasses (line at 39º to 43º)	2	**M1** for 'correct' attempt with compasses **Or B1** for correct without compasses
	S correctly located	/ 1	Dep. on 1, 1 scored
13.	(a) 0 , 9	2	**B1** for one value correct
	(b) Their 5 points correctly plotted Curve through their 5 points	/ P1 / C1	± ½ small square horiz/vert Allow min. at (1,-1)
	(c) 0 or ft their curve 1.4 to 1.6	/ 1 1	After 0 in (c): **SC1** for 2 correct coordinates
14.	(a) 7	1	
	(b)	2	**B1** for 'correct' style with one error ± ½ small square
	(c) Any relevant comparison	1 1	No wrong information. No repeats.
15.	(a) -2	3	**M1** for triangle drawn **or** 3 and 6 seen **And M1** for $\frac{6}{3}$ oe
	(b) √85 isw	3	**M2** for √(2² + 9²) **Or M1** for evidence of Pythagoras

16.	(a)(i) (x + 8)(x + 2)
	  (ii) -8 or -2
	
	(b) for equalising coefficients correctly
	    + or - as appropriate
	    x = 3 y = -2
		2
		/ 1
		
		M1
		M1
		B1
			M1 for (x+a)(x+b) where a+b=10 or ab=16
			Ft their 2 linear brackets
			
			Or rearranging equn 1 correctly
			Independent Or sub in equn 2

17.	(a)(i) 2.2×10^7
	  (ii) 0.00018
	  (iii) 3.2×10^6
	
	(b) $\sqrt{3} \times \sqrt{3}$ or $\sqrt{3}+\sqrt{3}+\sqrt{3}+\sqrt{3}$
	    A = 3
	    P = $4\sqrt{3}$ or $\sqrt{3} \times 4$
		1
		1
		2
		
		M1
		A1
		A1
			
			M1 for figs 32
			
			A correct answer www implies **M1**

18.	W=Y=90 (given) CXY=XAW corresponding angles Or AXW=XCY corresponding angles Same angles, so similar triangles	1 1,R1 1	Allow 'both are right angled triangles' Allow F angles. Nothing incorrect Or angles in a triangle Dep on 1,1 scored

5

Mark Scheme 1962/04
January 2007

Unless stated otherwise:
for calculations, mark at the most accurate stage, unless method is destroyed,
for algebraic answers mark final answer.

1.	(a) 3 correct sectors drawn (± 2°)	3	**B2** for 2 correct or **B1** for 1 correct drawn after **B0**, **SC1** for 20,120,180,40 oe % seen
	3 or 4 sectors correctly labelled	L1	Largest '3 or 4', smallest '0'
	(b) Length of programmes not known oe	1	
2.	(a) ($) 861	2	**M1** for figs (35 × 246)
	(b) (£) 2.03	2	**M1** for $\dfrac{5}{2.46}$ soi by figs 203(.)
3.	(a) 9	2	Accept implicit. **M1** for $5x = 38 + 7$
	(b) 2.5	3	Accept implicit. **M2** for $\dfrac{85-35}{20}$ or **M1** for $85 - 35$ (=50)soi
4.	(a) 15 (km)	1	
	(b) Stopped oe	1	
	(c) Between 1.30 and 2	1	Accept shorter range between 1.30 and 2.
	(d) 20	2	**SC2** for 26.6 to 26.7 **M1** for $\dfrac{60}{theirtime}$ soi by 15 or 27.9(.)
5.	(a) (£) 5	3	**B1** for (small) 3 and **M1** for 17 – 4 × their 3 oe
	(b)(i) 137 to 138	2	**M1** for 10.2 × 13.5
	(ii) 30.6	1	
	40.5	1	
	(iii) 9	2	**M1** for $\dfrac{their\,(30.6 \times 40.5)}{their\,(b)(i)}$ oe
6.	(a)(i) 53	1	
	(co-) interior angles oe or opposite angles and 360° quoted	R1	Accept supplementary or U angles
	(ii) Rhombus	1	
	(b) $x + x + 22 + x + 41 = 180$ oe	M2	**B1** for LHS
	$(x =) \dfrac{their\,180 - (22 + 41)}{3}$ oe seen	M1	Independent
	$(x =)$ 39	A1	After **M0** allow **B1** for answer 39.

7.	(a) Reflection in y axis	1	
	(b) Translation	1	
	(c) Rotation or turn only	1	
	90° (anticlockwise) or 270° clockwise	1	
	(centre) (2,0)	1	
8.	(a) (£) 1950	5	**M1** for $\dfrac{9640}{4}$ soi by 2410 and **M1** for 18 × 510 soi by 9180 **A1** for 11590 and **M1** for their 11590 − 9640
	(b) 237 to 238 cm^2	2 **U1**	**M1** for $\pi \times 8.7^2$
9.	(a) 8.2	2	**B1** for 8.1(.) or **SC1** for − 15.1
	(b) 5.33	2	**B1** for 5.3(.) or **SC1** for 31.3
	(c) 0.8 oe	1	
	(d) 2.25 × 10^6	2	**B1** for figs 225 or 2.2 × 10^6 or 2.3 × 10^6
	(e) 6.5	1	
10.	Final answer $n(n+3)$ oe	2	(condone $n \times n +3$) **B1** for n × something or $n + 3$ seen 'something' $\neq 1$
11.	(a) 3 (4y + 3)	1	
	(b) $x > 4$ (accept $x \geq 4$)	2	**M1** for $3x > 13 - 1$ oe or **SC1** for ($x =$) 4 or x < 4
12.	08 to 209	3	**M2** for $\sqrt{315^2 - 236^2}$ or **M1** for $x^2 + 236^2 = 315^2$ or **SC1** for $\sqrt{315^2 + 236^2}$ soi by 393 to 394

13.	(a)(i) 6p^2
	    (ii) m^9
	    (iii) t^2
		1
		1
		1	

	(b)(i) 2 × 3 × 5 (× 1)	**2**	**B1** for partial factors eg 6 × 5 or 2, 3, 5 seen
	(ii) 6	**1**	Condone 2 × 3
	(iii) 180 (seconds)	**2**	**SC1** for 180 k or **M1** for comparing multiples of 30 & 36
14.	(a) $y = 3x + 4$	**2**	**B1** for $y = mx + 4$ or $y = 3x + c$ or $3x + 4$ seen
	(b) $y = 3x - 18$	**2**	**B1** for $y = mx - 18$ or $y = 3x + c$ or $y = $ (*their* 3)$x + c$ or $3x - 18$ seen
15.	(a) 0.3	**2**	**M1** for $1 - (0.45 + 0.25)$
	(b) 2060 www isw	**4**	**M1** for 500, 1500, 2500, 3500, 4500 used **M1** for $\sum fx$, x within intervals (51500 $\Rightarrow$ **M2**) **M1** for their $\sum fx \div 25$ (dep on second **M1**)
	(c)(i) 5 correctly placed probabilities	**2**	**B1** for 0.4 correctly placed once
	(ii) 0.16	**2**	**M1** for (*their* 0.4) × (*their* 0.4)
16.	(£) 9660	**3**	**M2** for $\dfrac{figs7245}{figs75}$ soi by $figs966$ or **M1** for 7245 = 75% or $\dfrac{7245}{3}$ soi by 2415 or **M1** for $x - \dfrac{25}{100}x \approx 7245$
17.	69 or 70 www	**4**	**B3** for 68.7 to 68.8 or **M2** for 135 tan 27 or **M1** for $\tan(27) = \dfrac{BT}{135}$ After **B0, M0** allow **SC1** for final answer to nearest integer or 1 or 2 sf after trig seen
18.	a (b + c) length × length oe	**1** **1**	Dependent
19.	(a) Final answer $x^2 + 4x - 21$	**2**	**B1** for 2 correct terms in final answer or **M1** for $x^2, 7x, -3x, -21$ seen
	(b) x www	**1**	Accept $\dfrac{x}{1}$
20.	($x =$) 52 Angle at <u>centre</u> double angle at circum.	**1** **R1**	

General Certificate of Secondary Education (Mathematics) (1962)
January 2007 Assessment Series

Component Threshold Marks

Component	Max Mark	A*	A	B	C	D	E	F	G
3	100			65	42	31	20		
4	100			66	42	30	18		
7	48	43	37	31	26	22	18	14	10

Specification Options

Intermediate Tier
IA

	Max Mark	A*	A	B	C	D	E	F	G
Overall Threshold Marks	418			350	300	250	200		
Percentage in Grade				3.1	42.9	31.3	12.0		
Cumulative Percentage in Grade				3.1	46.0	77.2	89.2		

The total entry for the option was 532.

IC

	Max Mark	A*	A	B	C	D	E	F	G
Overall Threshold Marks	418			350	300	250	200		
Percentage in Grade				1.4	39.7	38.2	7.2		
Cumulative Percentage in Grade				1.4	41.1	79.3	86.5		

The total entry for the option was 738.

Overall

	A*	A	B	C	D	E	F	G
Percentage in Grade			2.1	41.0	35.4	9.2		
Cumulative Percentage in Grade			2.1	43.1	78.4	87.6		

The total entry for the examination was 1270.