ASSESSMENT and QUALIFICATIONS ALLIANCE

Mark scheme
November 2003

GCSE

Mathematics B (Modular)

Module 5: Intermediate
Paper 2

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Registered address AQA, Devas Street, Manchester M15 6EX. *Dr Michael Cresswell Director General.*

The following abbreviations are used on the mark scheme

M	Method marks awarded for a correct method.
A	Accuracy marks awarded when following on from a correct method. It is not necessary always to see the method. This can be implied.
B	Marks awarded independent of method.
M dep	A method mark which is dependent on a previous method mark being awarded.
ft	Follow through marks. Marks awarded for correct working following a mistake in an earlier step.
cao	Correct answer only.
SC	Special case. Marks awarded for a common misinterpretation which has some mathematical worth.

Intermediate Tier

1(a)	$180 - (2 \times 44)$ 92	M1 A1	oe
(b)	i) Corresponding	B1	
	ii) Alternate	B1	

2(a)	$3x$ or $(1)y$ seen $3x + y$	B1 B1	
(b)	i) $4m - 4$	B1	
	ii) $p^2 + 3p$	B1	Do not accept $p3$

3	$\frac{17.5}{100} \times 174.80$ 30.59	M1 A1	Accept full alternative method: $10\% + 5\% + 2\frac{1}{2}\%$

4	15.10 – 9.20 $\div 2$ 2.95	M1 M1 dep A1	Or 5.90 seen

5	Angle 95º or angle 40º Correct triangle	B1 B1	$\pm$ 2º

6(a)	$11 \times 9 \times 5$ 495	M1 A1	
(b)	(their 495) $\div 7.5^2$ 8.8	M1 A1 ft	Accept embedded answer eg $56.25 \times 8.8 = 495$

7(a)	$7x$	B1	Allow $7 \times x$ or $x \times 7$ Or $x + x + x + x + x + x + x$ Do not accept $x7$
(b)	$5n + 2$	B2	$5n$ or $5 \times n$ or $n \times 5$ seen B1 $kn + 2$ with $k \neq 1$ B1 $y = 5(n + 2)$ B1 $\frac{y}{5} = n + 2$ B1

8(a)	$5(2a + 1)$	B1	
(b)	$c(c - 4)$	B2	$c(c\ldots)$ or $c(\ldots -4)$ B1

9(a)	5	B1	
(b)	Correct reflection	B2	B1 for reflection in any horizontal line Or for inaccurate reflection in $y = 2$
(c)	Correct position	B1	

10(a)	$6r = 8 - 2$ 1	M1 A1	
(b)	32	B1	
(c)	$2s$ or 1 seen $2s = 1$ $\frac{1}{2}$ or 0.5	M1 A1 A1	Or $7s - 5s$ or $3 - 2$ Or $5s - 7s$ or $-2s$ or $2 - 3$ or -1 Or $-1 = -2s$ then simplified
(d)	$12 - y = 3 \times 5$ $12 - 15 = y$ -3	M1 M1 dep A1	Or $4 - y/3 = 5$ Or $-y/3 = 1$ Allow $y = 15 - 12$

11	Attempt to find circumference of circle or semicircle 14.1(3…) 23.1(3…)	M1 A1 A1 ft	Accept $2\pi \times \frac{9}{2}$, $2\pi \times 9$, $\pi \times 4.5$, $\pi \times 9$

12	Trial for $4 < x < 5$ Two trials for $4.2 \leq x \leq 4.3$ that 'bracket' 56 Trial at 4.25 & answer 4.3	B1 B1 B1	Correctly evaluated to at least nearest whole number Trials must be correct to or truncated to at least one dp

13	$p = 9$ $q = 13$	B1 B1	

14	One correct rectangular area Complete method by rect. areas 42 Their 42×400 16800	B1 M1 A1 M1 dep A1 ft	Or one correct cuboid Allow $\times 4$ for this M1 ft if $\times 400$ used

15(a)	Arc of radius 4 cm, centre E	B1	4 cm ± 2 mm
(b)	Correct area shaded	B1	(a) must show attempt at arc

16	$(y \pm a)(y \pm b)$ where $ab = 45$	M1	
	$(y - 9)(y + 5)$	A1	
	$(+)9, -5$	A1	ft on their brackets if M1 gained

17(a)	$3.6 \div \frac{2}{3}$	M1	
	5.4	A1	
(b)	45	B1	

18	$\frac{t}{3} = u - 5$	M1	Or $3u = t + 15$
	$t = 3(u - 5)$ or $3u - 15$	A1	

19	sin 48º or cos 42º seen	M1	Or indication that sine ratio is required
	51 × sin 48º or 51 × cos 42º	M1 dep	$\sqrt{51^2 - (51\cos 48^0)^2}$ which is not divisible M2
	37.9(…)	A1	
	37.9 or 38	B1	ft their 37.9 **NB Accuracy mark here**

20(a)	Attempt at $\frac{\text{difference in } y}{\text{difference in } x}$	M1	eg $\frac{900}{9000}$ or $\frac{1000}{10000}$
	$y = 0.1x + c$	A1	oe
	$y = mx + 600$	B1	Or $c = 600$ Or $y = mx + 600$
(b)	0.1 × 16000 + 600	M1	oe
	2200	A1	ft from their part (a)