

## CAMBRIDGE INTERNATIONAL MATHEMATICS

Paper 3 (Core) SPECIMEN MARK SCHEME 0607/03 For Examination from 2010

1 hour 45 minutes

## MAXIMUM MARK: 96

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## **TYPES OF MARK**

- M marks are given for a correct method.
- A marks are given for an accurate answer following a correct method.
- **B** marks are given for a correct statement or step.
- D marks are given for clear and appropriately accurate drawing.
- **P** marks are given for accurate plotting of points.
- E marks are given for correctly explaining or establishing a given result.
- C marks are given for clear communication (Papers 5 and 6 only).
- **R** marks are given for appropriate reasoning (Papers 5 and 6 only).

## **ABBREVIATIONS**

- ft Follow through
- oe Or equivalent
- soi Seen or implied
- www Without wrong working

1	(a)		Enlargement, (scale) factor 2, (centre) (4, 3)	B1B1 B1	Allow sf or anything clear for scale factor
	<b>(b)</b>		Correct image drawn (5, -4), (5, -3), (2, -4)	B2	If B0, allow B1 for any translation not parallel to either axis
	(c)		Correct image drawn (-1, 1), (-4, 1),	B2	If B0, B1 for reflection in <i>x</i> -axis
			(-4, 2)		[7]
2	(a)		17 12	B1	
	<b>(b)</b>	(i)	0.6 × 1.20 (\$) 0.72 www 2	M1 A1	Allow 72 cents but not 72
		(ii)	1.2:0.72 oe 5:3 www 2	M1 A1	
	(c)		$\frac{0.45}{3} \times 100$	M1	
			15 www 2	A1	
	(d)		$\frac{2.10}{7} \times 6$	M1	
			(\$) 1.80 www 2	A1	[9]
3	(a)	(i)	$\frac{AB}{12} = \tan 28^{\circ}$	M1	
			6.38 (6.380) www 2	A1	
		(ii)	0.5 × 12 × <i>their</i> (a)(i) 38.3 (38.28) www 2	M1 A1	
	<b>(b)</b>	(i)	<i>their</i> (a)(ii) $\times$ 30 1150 (1148) ft www 2	M1 A1	
		(ii)	$\sqrt{12^2 + (their(a)(i))^2}$	M1	
			13.6 (13.59) www 2	A1	
		(iii)	$12 \times 30 + their$ (a)(i) $\times 30 + their$ (b)(ii) $\times 30 + their$ (a)(ii) $\times 2$	M2	M1 for any one correct rectangle M1 for 3 rectangles plus two triangles
			1040 (1035 – 1036) www 3	A1	[11]
					[]

4	(a)		Good sketch, two branches	D2D2	Penalty 1 each: poor curve; not going through or near to (1, 0); touching <i>y</i> -axis second branch not changing curvature
	(b)		(1, 0)	B1	
	(c)		(-0.794, 1.89)	B1B1	
	(d)		x = 0	B1	Allow $y - axis$
	(e)		Reasonable parabola through $(-2, 0)$ and $(2, 0)$	D2	
	(f)		(-1.27, 2.39) or (-0.259, 3.93) or (1.53, 1.67)	B1B1	
	(g)		-1.27, -0.259, 1.53	B1B1 B1	[15]
5	(a)		$\frac{2}{5}$	B1	
			5		
	<b>(b)</b>	(i)	$\frac{2}{5} \times \frac{2}{5}$	M1	
			$\frac{4}{25}$ www2	A1	
	<b>(b)</b>	(ii)	1, 2 2, 1	B1 B1	Allow 1, 2 and 2, 1 written twice
		(iii)	$\frac{4}{25}$	B2	If B0, M1 for correct method e.g. possibility diagram or list (full or almost full)
	(c)	(i)	1.9	B1	
		(ii)	1	B1	
		(iii)	1.5	B1	
	( <b>d</b> )	(i)	1.92	B1	
		(ii)	1	B1	
		(iii)	2	B1	
		(iv)	3	B1	
		(v)	3	B1	[15]

6	<b>(a)</b>	(i)	108	B2	If B0, allow B1 for 540 seen or 360÷5 seen
		(ii)	36	B1	
		(iii)	72	B1	
		(iv)	72	B1	
	<b>(b)</b>		108	B2	If B0, allow B1 for evidence of angle <i>OAB</i> or <i>OBA</i> being 90
	(c)		18	B2	If B0, allow M1 for 108 – angle <i>ABE</i> – angle <i>OBC</i> oe
					[9]
7	(a)		25 000 × 0.9 <sup>3</sup> (\$) 18 225	M2 A1	If M0, give M1 for 25 000 $\times$ 0.9 at least once
	(b)		25 000 – their ( <b>a</b> )( <b>i</b> )	M1	
			$\frac{their(25000 - their(\boldsymbol{a})(\boldsymbol{i}))}{25000} \times 100$	M1	
			25000 27.1	A1	
	(c)		7 (years)	B2	If B0, give M1 for attempting repeated multiplications of 0.9 [8]
					رە
8	(a)		12 points correctly plotted	B3	B2 for 11 and B1 for 10 points
	<b>(b)</b>		(14.5, 31.2) plotted	B1	
	(c)		Reasonable line by eye, passing through point in <b>(b)</b>	B2	B1 if reasonable but not through point in <b>(b)</b>
	(d)		24.0 - 25.0	B1	
					[7]
9	(a)		$2 \times \pi \times 4.7 \times 11.4$	M1	
			337 (336.6)	A1	
	(b)		$(h=)\frac{A}{2\pi r}$	M2	M1 for $\div$ by any one of 2, $\pi$ , <i>r</i>
	(c)		90.3	M1	
			$2 \times \pi \times 2.7$ 5.32	A1	[6]

10	(a)		Two good branches each with its turning point	D2	Penalty 1 each; poor quality; touching <i>y</i> -axis
	(b)		(0, 0)	B1	
	(c)		Any value > 1	B1	
	(d)		Any value $\leq 1$	B1	
	(e)		1	B1	
	(f)	(i)	Reasonable rectangle drawn	B1	
		(ii)	20	B2	If B0, B1 for evidence of 4 or 5 for length of a side of a rectangle [9]