Cambridge
O Level

Cambridge International Examinations
Cambridge Ordinary Level

MATHEMATICS (SYLLABUS D) **4024/11**

Paper 1 **May/June 2017**

MARK SCHEME

Maximum Mark: 80

Published

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Question	Answer	Marks	Part Marks
1(a)	(0).016 oe	**1**	
1(b)	$2 \times (3 + 4) \times 5$ cao	**1**	
2(a)	22	**1**	
2(b)	Any trapezium of area 18 with height 4 cm and other parallel side 3 cm long	**1**	
3	20	**2**	**B1** for 135 seen or $\angle BDC$=25 or $\angle DAE$ = 45 or $\angle DEA$ = 45
4(a)	$2 \times 2 \times 3 \times 3$ oe	**1**	
4(b)	2,13	**1**	In either order
5	$t + 3t = 140$ or $4t = 140$	**B1**	
	$[t] = 35$	**B1**	
6(a)	kite	**1**	
6(b)	parallelogram	**1**	
7	77	**2**	B1 for 66 or 37 or 24 or 53 seen
8(a)	1400	**1**	
8(b)	12.25	**1**	
9(a)	16	**1**	
9(b)	80	**2**	B1 for 120 or 96 seen or M1 for $\frac{24}{40+x} = \frac{1}{5}$ or $\frac{16+x}{40+x} = \frac{4}{5}$ oe

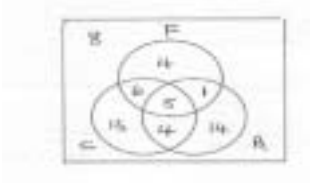
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Question	Answer	Marks	Part Marks
10(a)(i)	248.37	**1**	
10(a)(ii)	250	**1**	
10(b)	6	**1**	
11	Correct method to eliminate one variable reaching $ax = b$ or $cy = d$	**M1**	
	$x = -2$ $y = 3$	**A2**	A1 for either $x = -2$ or $y = 3$ Or after A0, C1 for a pair of values which satisfy either equation or for correct answers with no working
12(a)(i)	5	**1**	
12(a)(ii)	16	**1**	
12(b)	Histogram completed correctly	**1**	Column 20-30, height 1.4
13(a)	$\frac{19}{40}$	**1**	
13(b)	$\frac{14}{15}$	**1**	
13(c)	$\frac{31}{48}$ oe	**1**	Must be integers
14(a)	1.86×10^{-4}	**1**	
14(b)(i)	6.4×10^{17}	**1**	
14(b)(ii)	7.87×10^{8}	**2**	B1 for figs 787 seen

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Question	Answer	Marks	Part Marks
15(a)	1080	**1**	
15(b)(i)	$\frac{1}{27}$ oe	**1**	
15(b)(ii)	1040	**2**	M1 for *their* 1080 × *their* $\frac{1}{27}$ or 40
16(a)(i)	13	**1**	
16(a)(ii)	58	**1**	
16(b)	$[r] = [\pm]\sqrt{\frac{A-5}{2}}$	**2**	M1 for $r^2 = \frac{A-5}{2}$ or $\sqrt{(2r^2)} = \sqrt{(A-5)}$
17(a)	B drawn with vertices (2,–3) (3,–3)(3,–5)	**1**	
17(b)(i)	C drawn with vertices (4,1 (6,1) (6,3)	**2**	B1 for correct size triangle drawn but in wrong position or B1 for C drawn using stretch, sf 2 with *x*-axis invariant, vertices (2,2) (3,2) (3,6)
17(b)(ii)	$\begin{pmatrix} 2 & 0 \\ 0 & 1 \end{pmatrix}$	**1**	
18(a)(i)	$\frac{1}{9}$	**1**	
18(a)(ii)	25	**1**	
18(b)	$\frac{b^2}{3a}$	**2**	B1 for b^2 or $3a$ in final answer or M1 for $\frac{b^4}{9a^2}$

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Question	Answer	Marks	Part Marks
19(a)	430	**1**	
19(b)	300	**1**	
19(c)	12	**2**	M1 for $\frac{2.4\times 20}{4}$
20(a)	11	**1**	
20(b)	30	**1**	
20(c)(i)	line joining (1125, 25) to (1155, 0)	**1**	
20(c)(ii)	1136 – 1137	**1**	Ft their line with negative gradient
21(a)(i)	Correct Venn diagram 	**2**	B1 if 1 or 2 errors in the numbers
21(a)(ii)	55	**1**	
21(b)(i)	40	**1**	
21(b)(ii)	39	**1**	

Question	Answer	Marks	Part Marks
22(a)	$(3\frac{1}{2}, 3\frac{1}{2})$	**1**	
22(b)	(–1, 4)	**1**	
22(c)	(1, 0)	**1**	
22(d)	$y = \frac{1}{3}x + \frac{7}{3}$ oe	**2**	**B1** for $y = \frac{1}{3}x$ [+ c] or $y = mx + \frac{7}{3}$ or $\frac{1}{3}x + \frac{7}{3}$
23(a)(i)	$\mathbf{q} - \mathbf{p}$	**1**	
23(a)(ii)	$\mathbf{p} - \frac{3}{4}\mathbf{q}$ or $\frac{4\mathbf{p} - 3\mathbf{q}}{4}$	**1**	
23(b)(i)	$\overrightarrow{PT} = \frac{1}{3}\mathbf{P}$	**2**	M1 for $\overrightarrow{PT} = \overrightarrow{PS} + \frac{1}{3}\overrightarrow{QS}$ soi or $\overrightarrow{PT} = PQ + QT$ soi
23(b)(ii)	O, P and T are collinear oe	**1**	e.g. T is on OP produced
24(a)	23	**2**	M1 for $6x - 18$ or $5x + 5$
24(b)(i)	−8	**1**	
24(b)(ii)	−1 or 7 with correct working	**3**	M1 $(m - 3)^2$ correctly expanded to $m^2 - 6m + 9$ or $(m - 3)^2 + 1 = 17$ **and** M1 for $m^2 - 6m - 7 = 0$ or $(m - 3) = \pm 4$ or SC1 for $m = -1$ or 7 with no working

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