MATHEMATICS (SYLLABUS D)		4024/11
Paper 1		**May/June 2017**
MARK SCHEME		
Maximum Mark: 80		

Published

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This document consists of **6** printed pages.

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 $\dfrac{24}{40 + x} = \dfrac{1}{5}$ or $\dfrac{16 + x}{40 + x} = \dfrac{4}{5}$ oe

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)	$\dfrac{19}{40}$	1	
13(b)	$\dfrac{14}{15}$	1	
13(c)	$\dfrac{31}{48}$ 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

Question	Answer	Marks	Part Marks
15(a)	1080	1	
15(b)(i)	$\dfrac{1}{27}$ oe	1	
15(b)(ii)	1040	2	M1 for *their* 1080 × *their* $\dfrac{1}{27}$ or 40
16(a)(i)	13	1	
16(a)(ii)	58	1	
16(b)	$[\,r\,] = [\pm]\sqrt{\dfrac{A-5}{2}}$	2	M1 for $r^2 = \dfrac{A-5}{2}$ 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)	$\dfrac{1}{9}$	1	
18(a)(ii)	25	1	
18(b)	$\dfrac{b^2}{3a}$	2	B1 for b^2 or $3a$ in final answer or M1 for $\dfrac{b^4}{9a^2}$

Question	Answer	Marks	Part Marks
19(a)	430	1	
19(b)	300	1	
19(c)	12	2	M1 for $\dfrac{2.4 \times 20}{4}$
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	
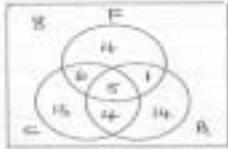
Question	Answer	Marks	Part Marks
22(a)	$(3\frac{1}{2},\ 3\frac{1}{2})$	1	
22(b)	$(-1, 4)$	1	
22(c)	$(1, 0)$	1	
22(d)	$y = \frac{1}{3}x + \frac{7}{3}$ oe	2	**B1** for $y = \frac{1}{3}x\ [+\ c]$ or $y = mx + \frac{7}{3}$ or $\frac{1}{3}x + \frac{7}{3}$
23(a)(i)	$\mathbf{q} - \mathbf{p}$	1	
23(a)(ii)	$\mathbf{p} - \frac{3}{4}\mathbf{q}$ 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