

CAMBRIDGE INTERNATIONAL EXAMINATIONS

Cambridge Ordinary Level

MARK SCHEME for the October/November 2015 series

4024 MATHEMATICS (SYLLABUS D)

4024/11

Paper 1, maximum raw mark 80

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Question	Answers	Mark	Part marks
1 (a)	19	1	
(b)	$\frac{8}{45}$ oe	1	
2 (a)	8	1	
(b)	48; or FT $6 \times their(a)$	1 \checkmark^*	
3 (a)	700	1	
(b)	147; or 3×7^2	1	
4 (a)	320	1	
(b)	150	1	
5	4	2 *	M1 for $(\sqrt{50})^2 - (\sqrt{34})^2$
6 (a)	30 700	1	
(b)	(0).538	1	
7	(0).28 oe	2 *	B1 for (0).4 oe seen
8 (a)	123	1	
(b)	7 WWW	2 *	M1 for $5a - 2 = 33$ oe
9 (a)	11	1	
(b)	x^2	1	
(c)	8	1	
10 (a)	-8 and 2	1	
(b)	-3	1	
(c)	-2, 0, 2 all three	1	
11 (a)	(0).75	1	
(b)	4.65	2 *	M1 for $5.5 - (0).85$
12 (a)	4 WWW	2 *	M1 for (3.8×5) soi by 19
(b)	3	1	

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13 (a)	3	1	
(b)	2.08; or $2\frac{8}{100}$, or better and isw	2 *	M1 for numerical $\frac{\sum fx}{50}$
14 (a)	$(\pm)\frac{1}{3}$	1 *	
(b)	999	1	
(c)	4	1	
15	$\frac{17}{16d - c}$	3 *	M1 for squaring <i>both</i> sides M1 (indep.) for collecting <i>both their x</i> terms onto one side and the numerical terms onto the other side
16 (a)	7.53×10^{-5}	1	
(b)	6.045×10^{24}	2	C1 for figs. 6.0(4)5 or for $A \times 10^{24}$ where $1 < A < 10$
17	1 or 5 WWW	3 *	<i>Either</i> M1 for $5 + (3 - t)^2 = 9$ and M1 for $t^2 - 6t + 5 = 0$; <i>or</i> M1 for $(3 - t)^2 = 4$ and M1 for $3 - t = \pm 2$
18 (a)	21	1	
(b)	$5p + 1$ oe	2	C1 for $5p + c$; or for $kp + 1$ ($k \neq 0$)
19 (a)	295°	1	
(b)	Perpendicular bisectors of <i>AB</i> and <i>BC</i> with region around <i>B</i> shaded	2 *	B1 for either perpendicular bisector correct
20 (a) (i)	20	1	
(ii)	40	1	
(b)	300 WWW; or FT $5 \times \{their(i) + their(ii)\}$	2 * $\frac{1}{2}$	M1 for $\frac{1}{2} \times (their\ 20 + their\ 40) \times 10$ oe
21 (a)	Pie chart completed accurately, and labelled with Bananas and Oranges	2 *	M1 for $4 \times 18 (= 72)$ oe or for $4 \times 32 (= 128)$ oe
(b)	20	2 *	M1 for $\frac{72 - 60}{60} \times 100$ oe

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22 (a)	$16 - 9x$	1	
(b)	$\frac{x+5}{3x-1}$	3 *	B1 for $(3x+1)(x+5)$ oe B1 for $(3x+1)(3x-1)$ oe
23 (a)	$15a + 12c = 324$ seen	1	
(b)	Correctly equating one set of coefficients Correct method to eliminate one variable Either $a = 16$ or $c = 7$ WWW Both $a = 16$ and $c = 7$ WWW	M1 M1 A1 A1	If A0 , then C1 for a pair of values that satisfy either original equation.
(c)	99; or FT ($4 \times$ their $a + 5 \times$ their c) provided both a and c are positive	1 ✓ ^h	
24 (a)	112°	2 *	B1 for $\hat{P}RQ = 31^\circ$; or for $\hat{P}RS = 68^\circ$; or for $\hat{P}TS = 180^\circ -$ their $\hat{P}RS$
(b) (i)	37.5° WWW	2 *	M1 for $\hat{E}OD$, or other angle at the centre, $= \frac{360 - 60}{4}$ ($= 75^\circ$)
(ii)	12.56	2 *	M1 for $\frac{60}{360} \times 2 \times 3.14 \times 12$ or better
25 (a)	Two corresponding pairs of angles equated, with reasons, from $\hat{B}AE = \hat{F}CB$ opp. angles of a parm. $\hat{A}BE = \hat{C}FB$ alternate angles $\hat{A}EB = \hat{C}BF$ alternate angles	2 *	B1 for any one pair, with correct reason
(b)	7.5 oe	2 *	M1 for $\frac{BC}{5} = \frac{6}{4}$ oe
(c)	$12x$	2 *	B1 for seeing $4x$ or $9x$ as $\triangle ABE$ or $\triangle BCF$ respectively