CAMBRIDGE
International Examinations

Abbreviations

cao	correct answer only
cso	correct solution only
dep	dependent
ft	follow through after error
isw	ignore subsequent working
oe	or equivalent
SC	Special Case
www	without wrong working
soi	seen or implied

Qu		Answers	Mark	Part Marks
1		£ or pound[s] **Correct working must be shown**	2	**M1** for $425 \div 1.14$ or 365×1.14
2		$\dfrac{30}{300}$ oe www	2	**M1** for 30 seen or $\dfrac{k}{300}$ seen
3		1500 or 3 <u>pm</u>	2	**B1** for 1h50 or 2h[0]5 or **SC1** for 1255 + *their* 1h50 + 15mins correctly evaluated
4	(a)	[±] **2.28** or 2.282 to 2.2822	1	
	(b)	**0.109** or 0.1094[3…]	1	
5		$\left(\dfrac{2}{3}\right)^{1.5}$ $\left(-\dfrac{2}{3}\right)^{\frac{2}{3}}$ $(1.5)^{\frac{2}{3}}$ $\left(\dfrac{2}{3}\right)^{-1.5}$	2	**M1** for at least 2 correct decimals seen 1.3[1..] 0.5[4..] 1.8[3..] or 1.84 0.7[6..]
6		6	3	**M2** for $3 \times \sqrt[3]{\dfrac{288\pi}{36\pi}}$ or **M1** for $3 \times \sqrt[3]{\dfrac{288\pi}{36\pi}}$ or $3 \times \sqrt[3]{\dfrac{36\pi}{288\pi}}$
7		260	3	**M2** for $[2 \times](4 \times 10 + 18 \times 5)$ oe or **M1** for a correct area statement
8		2500	3	**M1** for $m = kr^3$ **A1** for $k = 20$
9	(a)	1.1×10^5	2	**B1** for $110\,000$ oe e.g. 11×10^4
	(b)	5×10^3	2	**B1** for 5000 oe e.g. 0.5×10^4

10		25	4	**M1** for correct method to eliminate one variable **A1** for $x = 11$ **A1** for $y = 3$ **B1 FT** for $2 \times$ *their* $x +$ *their* y correctly evaluated
11	(a)	77	2	**M1** for 11,13,17,19 clearly identified, ignore numbers less than 8 with no other numbers greater than or equal to 8 besides possibly an extra 17
	(b)	either 18 or 19 or both	2FT	**M1** for 11,13,17 clearly identified, ignore numbers less than 8 with no other numbers greater than or equal to 8 besides possibly an extra 17 or for *their* (a) − 58
12	(a)	$\dfrac{5}{25}$ oe	2	**B1** for answer $\dfrac{5}{k}$ or $\dfrac{k}{25}$
	(b)	$\dfrac{4}{25}$ oe	2	**B1** for answer $\dfrac{4}{k}$ or $\dfrac{k}{25}$
13		$\dfrac{8x}{(x-3)(x+1)}$	4	**B1** for common denominator $(x-3)(x+1)$ seen **B1** for $(x+3)(x+1) - (x-1)(x-3)$ soi **B1** for $x^2 + 3x + x + 3$ or $x^2 - 3x - x + 3$ soi
14	(a)	$n < 9$	2	**M1** for $2n < 18$ or $2n - 18 < 0$ oe If 0 scored **SC1** for 9 with incorrect inequality.
	(b)	$(b + d)(a + c)$	2	**B1** for $b(a + c) + d(a + c)$ or $a(b + d) + c(b + d)$
15	(a)	4	2	**M1** for attempt at sum of all numeric and x terms equated to 74
	(b)	26	1FT	$= 18 + 2 \times$ their (a)
	(c)	8	1	
16	(a)	1.5	2	**B1** for [g(18) =] 4
	(b)	$2(x + 5)$ or $2x + 10$	2	**M1** for correct first step e.g. $x = \dfrac{y}{5} - 5$ or $\dfrac{x}{2} = y + 5$ or $2y = x - 10$

17	(a)	$\begin{pmatrix} 7 & 23 & 16 \\ 12 & 45 & 27 \end{pmatrix}$	2	**B1** for any one row or column correct, must be in a 2 by 3 matrix
	(b)	$\dfrac{1}{3}\begin{pmatrix} 6 & -3 \\ -3 & 2 \end{pmatrix}$	2	**B1** for $k\begin{pmatrix} 6 & -3 \\ -3 & 2 \end{pmatrix}$ or $\dfrac{1}{3}\begin{pmatrix} a & b \\ c & d \end{pmatrix}$
18		15.4 or 15.35 to 15.36	4	**M1** for $\dfrac{120}{360}\times\pi\times5^2$ oe **M1** for $\dfrac{1}{2}\times5^2\times\sin120$ oe **M1** for $\dfrac{120}{360}\times\pi\times5^2-\dfrac{1}{2}\times5^2\times\sin120$ oe
19	(a)	hexagon	1	
	(b) (i)	$-\mathbf{b}+\mathbf{c}$	1	
	(ii)	$\mathbf{b}-\tfrac{1}{2}\mathbf{c}$	2	**B1** for **OB** + **BA** or any correct route
	(iii)	$-\mathbf{b}+\mathbf{c}$	1FT	= *their* (b)(i)
20	(a)	$[\pm]$ 3.1623 cao	2	**M1** for √10 seen
	(b)	$\dfrac{4}{y^2-8}$ oe final answer	4	**M1** first move completed correctly **M1** second move completed correctly **M1** third move completed correctly **M1** final move completed correctly on answer line