

Question	Working	Answer	Mark	Notes
1		$\frac{19}{100}$	1	B1 cao
2		5	1	B1 cao
3		7	1	B1 cao
4		$(5 + 3) \times 2 + 1$	1	B1 cao
5	$9 + 7$	16	1	B1 cao
6		47°	1	B1 for any answer in the range 45-49
7		A	1	B1 cao
8	$360 - 70$	290° Angles around a point add up to 360°	2	A1 cao (May be seen on the diagram provided no ambiguity.) A1 Statement must contain bold words or no marks.
9		$3a - 2b$	2	M1 for $3a$ or $-2b$ A1 cao
10	0.43, 0.428..., 0.438, 0.4375	$\frac{3}{7}$, 0.43, $\frac{7}{16}$, 43.8%	2	M1 Converts numbers to common format e.g., decimals to at least 3 d.p. A1 cao
11	$\begin{array}{r rrrr} 1 & 6 & 8 & 9 \\ 2 & 2 & 2 & 3 & 3 & 4 & 5 & 8 \\ 3 & 1 & 3 & 4 \\ 4 & 0 & 1 \end{array}$ key 4 1 is 41	Diagram	3	B2 for a fully correct diagram (B1 for an ordered diagram with one error or omission OR for an unordered diagram) B1 for an appropriate key
12		33	3	P1 for relating 24 to 8 parts or (1 part =) $24 \div 8 (=3)$ or $15 - 7 = (8)$ P1 for $(15-4)$ and $(24 \div 8)$ or $15 \times 3 (=45)$ and $4 \times 3 (12)$ A1 cao

13		720	3	<p>P1 attempt to find the maximum biscuits for one of the ingredients. e.g. flour $5000 \div 150 (=33.3..)$ P1 for identifying butter as the limiting factor or $30 \times 24 (=720)$ seen</p> <p>A1 cao</p>
14		2.3×10^6	2	<p>M1 2.3×10^n where $n \neq 6$ or 23×10^5 or 2300000 or 2645000000 and 1150 seen.</p> <p>A1 cao</p>
15		320 000	2	<p>M1 for a complete method e.g. $272000 \div \left(\frac{100-15}{100}\right)$</p> <p>A1 cao</p>
16	$\sqrt{8.5^2 - 4^2}$	7.5	2	<p>M1 for correct use of Pythagoras e.g., $4^2 + x^2 = 8.5^2$ or better</p> <p>A1 for 7.5 or $7\frac{1}{2}$ or $\frac{15}{2}$ <i>Trigonometry may be used but M1 only awarded when complete method shown.</i></p>
17		99.5	2	<p>M1 for $\sin(34) = \frac{x}{178}$ oe or alternative method to find x A1 for answer in the range 99.5 to 99.7 NB if an answer in the range 99.5 to 99.7 is given in the working space then incorrectly rounded, award full marks</p>
18	BFD = 42° GFB = 110° $110 - 42$	68	3	<p>M1 for EDC = 42 or DHF = $180 - 110 (=70)$ M1 for $180 - 42 - 70$ A1 cao</p>

				Alternative method M1 for BFD = 42° or BFH = 110° M1 for $110 - 42$ A1 cao Alternative method M1 for AFH = $180 - 110 (=70^\circ)$ M1 for $180 - 70 - 42$ A1 cao
19		$2x(2x - 3)$	2	M1 for either 2 or x as a factor with the bracket correct for what they have done A1 cao
20		$(x + 11)(x - 11)$	2	M1 for $(x \pm 11)(x \pm 11)$ or $(x \pm 1)(x \pm 121)$ A1 cao
21		14.5	3	M1 For $f \times x$ using midpoints e.g. $11 \times 3 + 13 \times 8 + 15 \times 14 + 17 \times 4 + 19 \times 1$ M1 (dep on first M1) for $\sum fx \div 30$ A1 accept 14.4 to 14.5
22		32.3	5	P1 for using Pythagoras to find length of third side of triangle e.g. $7.5^2 - 6^2$ or $x^2 + 6^2 = 7.5^2$ OR uses trigonometry to find angle in triangle e.g. $\sin A = \frac{6}{7.5}$ or $\cos B = \frac{6}{7.5}$ P1 (Dep on P1) for complete process to find length of third side of triangle e.g. $\sqrt{7.5^2 - 6^2}$ or $\sqrt{56.25 - 36}$ or $\sqrt{20.25} (= 4.5)$ OR used trigonometry to find base length of triangle e.g. $7.5 \times \cos "A"$ or $7.5 \times \sin "B"$ or $\frac{6}{\tan "A"}$ P1 (Dep P2) for $24 - 10 - "4.5" (= 9.5)$ P1 (indep.) for process to find angle CDA e.g. $\tan CDA = \frac{6}{base}$ from right-angles triangle A1 for answer in the range 32.3. to 32.3

23		No with comparison of correct values	3	P1 process of comparison e.g. writes two appropriate fractions or finds a percentage or works out a multiplier P1 complete process to give values that can be used for comparison A1 NO and comparison of correct comparable values e.g. 80% and 76.7....% OR 44.8 (people) <i>Accept Yes with a suitable argument</i>
24	a, b, a + b, a + 2b, 2a + 3b	shown	2	M1 for method to show by adding pairs of successive terms e.g. a + 2b C1 for a + 2b and 2a + 3b shown

Extension

Question	Working	Answer	Mark	Notes
1		$\frac{59}{330}$	3	M1 for $100x = 17.87878787\dots$ Or $1000x = 178.7878787\dots$ And $10x = 1.7878787\dots$ M1 (dep) for subtraction, $100x - x$ or $1000x - 10x$ or $\frac{17.7}{99}$ or $\frac{177}{990}$ seen A1 working leading to given fraction
2 (a)		Explanation	C1	For a correct explanation, e.g., $8\sqrt{5}$ not $8\sqrt{10}$ Or we add the numbers outside the root and the number under the root stays the same
(b)		Explanation	C1	For a correct explanation, e.g., $\sqrt{12} = 2\sqrt{3}$, not $3\sqrt{2}$