

Paper 5503				
No	Working	Answer	Mark	Notes
1	(a)(i)	8g	2	B1 oe
	(ii)	10rp		B1 for 10pr or 10 rp
	(b)	10y - 15	1	B1 cao accept 10y - + 15
	(c)	6x + 8 - 12x + 15	2	M1 for 3 correct terms out of 4 A1 cao
2		m = 6n	2	B2 for m = 6n oe accept 6 × n, n 6 (B1 for 6n alone, or 6n +1 oe OR m = multiple of n except m = n)
3	(i)	0.067, 0.56, 0.6, 0.605, 0.65	1	B1 cao Ignore trailing zeros
	(ii)	-10, -6, -4, 2, 5	1	B1 cao
	(iii)	$\frac{2}{5}, \frac{1}{2}, \frac{2}{3}, \frac{3}{4}$	2	B2 all four correct (B1 any three in correct order) SC: B1 all 4 in reverse order
4		7 5 5 13 33 52 23	3	B3 all correct (B2 for 4, 5 or 6 correct entries) (B1 for 2, 3 correct entries)

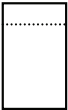
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5		$\frac{2}{3}$	3	M1 for 3 rows (9 squares) shaded M1 for 2 columns (10 squares) shaded A1
	OR $\frac{3}{5} = \frac{9}{15}$ $\frac{2}{3} = \frac{10}{15}$ Therefore $\frac{2}{3} > \frac{3}{5}$	$\frac{2}{3}$		M1 for $\frac{3}{5} = \frac{9}{15}$ M1 for $\frac{2}{3} = \frac{10}{15}$ A1
	OR $\frac{3}{5} = 0.6$ or percent $\frac{2}{3} = 0.66$ or 0.67 or better Therefore $\frac{2}{3} > \frac{3}{5}$	$\frac{2}{3}$		M1 for $\frac{3}{5} = 0.6$ or percent M1 for $\frac{2}{3} = 0.66$ or 0.67 or better A1
6	$2 \times 29 = 58$ $5 \times 30 = 150$ $2 \times 31 = 62$ $1 \times 32 = 32$ $\frac{302}{10} = 30.2$	30.2	3	M1 for freq \times no. pins (at least 3) M1 for totalling and for $\div 10$ (dep on 1 st M1) A1 cao
7	(a) (b)		2 3	B1 for 180° rotation (wrong centre) B1 cao B1 for any enlargement sf other than 1 B1 for all sides halved B1 for position

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8 (a) (b)		12x 12x + 10y	1 2	B1 oe B2 oe or ft from (a) (B1 for 12x + a multiple of y or 10y seen) SC B1 for $x = 12x + 10y$ or $y = 12x + 10y$
9	$\frac{1}{3} + \frac{1}{4} = \frac{4}{12} + \frac{3}{12} = \frac{7}{12}$ $1 - \frac{7}{12} = \frac{5}{12}$ <p>OR</p> $1 - \frac{1}{3} = \frac{2}{3}, 1 - \frac{1}{4} = \frac{3}{4}$ $\frac{9}{12} - \frac{4}{12} = \frac{5}{12}, \frac{8}{12} - \frac{3}{12} = \frac{5}{12}$	$\frac{5}{12}$	3	<p>M1 for $\frac{4}{12}$ and $\frac{3}{12}$ oe</p> <p>A2 for $\frac{5}{12}$ oe</p> <p>(A1 for getting $\frac{7}{12}$)</p> <p>(B1 for $1 - \frac{7}{12} + \frac{1}{4}$ correctly evaluated)</p> <p>OR</p> <p>B1 for $\frac{2}{3}$ or $\frac{3}{4}$ seen</p> <p>M1 for $\frac{3}{4} - \frac{1}{3} = \frac{9}{12} - \frac{4}{12}$ or $\frac{2}{3} - \frac{1}{4} = \frac{8}{12} - \frac{3}{12}$</p> <p>A1 for $\frac{5}{12}$ oe</p> <p>OR</p> <p>M1 0.25 and 0.33 or better</p> <p>A1 for 0.58 or better</p> <p>A1 for 0.416 <i>recurring</i></p>
10 (a) (b)(i) (ii)	180 - (54 + 54)	54 72	1 3	<p>B1 cao</p> <p>M1 for 180 - ("54" + "54")</p> <p>A1 for 72° ft from (a) if $x < 90^\circ$</p> <p>B1 for mentioning isosceles and equal or base angles or equal sides and equal or base angles</p>

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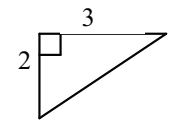
No	Working	Answer	Mark	Notes
11	(a) Bryani was correct $4 \times 3^2 = 4 \times 9 = 36$	Bryani	2	M1 for 4×9 or $4 \times 3 \times 3$ or “square the three/ x then multiply by four” A1 Bryani SC 4×3^2 with Bryani gets B2
	(b)		1	B1 cao
12	(a)		3	B2 for rectangle height 4 squares, base 3 squares (B1 for rectangle with one correct dimension) B1 for line 1 square from the top
	(b)		2	SC B2 for completely correct elevation on its side B2 for perspective drawing showing slant face and cut out (B1 for perspective drawing with either slant face or cut out omitted or one aspect incorrect)
13	(a)	40	2	M1 for 20×2 or $\frac{20}{30} \times 60$ or $20 \div \frac{1}{2}$ A1 cao
	(b)	Line from (45, 20) to (65, 0)	2	M1 for $\frac{20}{60}$ or $\frac{1}{3}$ or 20 minutes seen A1 for correct line SC If M0, B1 for line from (45, 20) to (t , 0) where $t > 45$ or a line of the correct gradient
14	(i)	119.31	3	B1 cao
	(ii)	119 310		B1 cao
	(iii)	1.23		B1 cao

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15	$\frac{10}{100} \times 12000$ $12\,000 - 1200 = 10\,800$ $\frac{10800}{10} = 1080$ $10\,800 - 1080 = \text{£}9720$	£9720	3	<p>M1 for $\frac{10}{100} \times 12000$ or sight of 1200 or 2400 or 10 800 or 9600</p> <p>M1 (dep) for $\frac{10}{100} \times (12\,000 - \frac{10}{100} \times 12000)$ or sight of 1080 A1 cao</p> <p>Alternative mark scheme</p> <p>M2 for $12000 \times (1 - \frac{10}{100})^2$</p> <p>(M1 for $12000 \times (1 - \frac{10}{100})$) A1 cao</p>
16	<p>(a) $2p = 6$</p> <p>(b) $7r - 5r = -20 - 2$</p>	<p>$p = 3$</p> <p>-11</p>	<p>2</p> <p>2</p>	<p>M1 for $7p - 5p = 8 - 2$ or $2p$ or 6 A1 cao</p> <p>M1 for $7r + 2 = 5r - 20$ or $\frac{7r}{5} + \frac{2}{5} = r - 4$ or</p> <p>$7r - 5r = 20 - 2$ or $\frac{7r}{5} - r = -4 - \frac{2}{5}$</p> <p>A1 cao</p>
17		$5n + 1$	2	<p>B2 oe (B1 for $5n$ seen) NB: $n =$ gets B1 max</p>

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18	(a) $-1, 0, 1$ (b) $(-1, -1), (0, -1), (1, -1), (0, 0), (1, 0), (1, 1)$		2 3	B2 for $-1, 0, 1$ (B1 for $-1, 0$ or $0, 1$ or $-1, 1$ or $-2, -1, 0, 1$ only) B3 for 6 points correct B2 for 3 points correct B1 for 1 point correct NB –B1 each additional point over six
19	(a) Triangle with vertices at $(0,0)$ $(0,-2)$ and $(3,0)$ ----- (b) Rotation, 180° , centre $(0,1)$ Enlargement sf - 1 centre $(0,1)$		2 2	M1 for correct orientation A1 cao B2 for 180° ‘rotation’ centre $(0, 1)$ B2 for Enlargement sf - 1 centre $(0,1)$ (B1 for any two of the three parts) NB: B0 if additional transformation is included
20	Bisector of $\angle BAC$ Arc around A Region		3	B3 cao (B2 for <u>either</u> two correct boundaries, no shading/ wrong shading <u>or</u> one correct boundary, one incorrect boundary with valid shading) (B1 for <u>either</u> two incorrect boundaries but one drawn from A and one intersection, with valid shading <u>or</u> one correct boundary) Ignore shading outside the triangle
21		Length Volume Area	3	B1 for Length B1 for Volume B1 for Area
22	(a) Unbiased question with choices (b)		2 2	B1 for unbiased question B1 for at least 2 choices Classification 1: A biased question Classification 2: A restricted sample of people Classification 3: Not specifying a range of foods Classification 4: Nothing to do with eating habits B2 reasons which satisfy 2 different classifications (B1 a reason which satisfies one classification)



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23	(a) $6 \times 10^2 \times 8 \times 10^4$ 48×10^6	4.8×10^7	3	M1 for $6 \times 10^a \times 8 \times 10^b$ oe, a and b integers including 0 A1 for 48×10^6 oe A1 cao
	(b) 200 000 + 30 000	230000	2	B2 cao (B1 for sight of 200 000 or 30 000 or 2.3×10^5 or 23×10^4)
24	(i)	64	4	B1 cao
	(ii)	3		B1 cao
	(iii) $\sqrt{16 \times 9} = \sqrt{144}$	12		B2 cao (B1 for sight of $\sqrt{2^4} \times \sqrt{9}$ or better, or 144 seen)
25	(i) Tangent 90° to diameter /radius/ line from (through) centre	27°	4	B1 for 27° cao B1 for reason
	(ii) $180 - (90 + "27")$ angle in semicircle (is 90°)/Alternate segments /angle at centre twice at circumference	63°		B1 ft for $90 - "27"$ if not 63° B1 for reason
26	(a)(i)	152	2	B1 cao
	(ii)	177		B1 cao
	(b)		3	B1 for median marked at 167 B1 ft for position of box with its ends at "152" and "177" B1 for position of whiskers with ends at 132 and 182 NB: For any points plotted between 141 and 149 give a tolerance of an extra ± 1 square
27	$x^2 + xy + xy + y^2$	$x^2 + 2xy + y^2$	2	M1 for at least 3 of the 4 terms correct A1 cao
		25	2	M1 for recognising $3.47 + 1.53 (= 5)$ A1 cao