

Paper 5504				
No	Working	Answer	Mark	Notes
1	(a) $4.1^2 \times 1.07 = 16.81 \times 1.07$	17.9867	2	M1 for (4.1) followed by squaring, or sight of 16.81 A1 cao
	(b)	$(1.6 + 3.8 \times 2.4) \times 4.2$	1	SC: B1 for 18 or better with no working B1 cao Allow additional brackets if they give an expression with value 45.024
2	(a) $269.30 - 56.80 = 212.50$	6	2	M1 for $\frac{269.30 - 56.80}{42.50}$ or 5 seen A1 cao
	(b) 5% of £269.30 £269.30 – “£13.465”  OR $\frac{95}{100} \times 269.30$	255.83 or 255.84	3	M1 for $(5 \div 100) \times 269.30$ M1 (dep) for 269.30 – “13.465” A1 cao OR M2 for $\frac{95}{100} \times 269.30$ A1 cao <b>Alternative Method:</b> M1 for $\frac{5}{100} \times 56.80 (= 2.84)$ and $\frac{5}{100} \times 42.50 (= 2.12(5))$ (OR <u>53.96</u> <u>AND</u> 40.38 (40.375) seen  M1 for 56.80 – “2.84” (= 53.96) 42.50 – “2.12(5)” (= 40.375 or 40.38) “5” × “40.375” + “53.96” A1 cao

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3	(a)	60	1	B1 cao
	(b) $360 - 60 - 90 - 90$	120	2	M1 for $360 - "60" - 90 - 90$ or $180 - "60"$ A1 cao
	(c) $6 \times 2$	12	2	M1 for $6 \times 2$ A1 cao 12
	(d)	Correct drawing	2	B2 for triangle and construction lines (see overlay) (B1 for 1 line of length 4cm and correct arcs crossing OR for correct triangle with either no arcs or incorrect arcs) SC: B1 similar triangle drawn with construction lines
4	a(i) $240 \times 5 = 1200$	1250	3	B1 cao 1250
	(ii) $\frac{50}{1250}$	$\frac{1}{25}$		M1 $\frac{50}{"1250"}$ A1 oe in its simplest form
	(b) $\frac{60}{100} \times 1000 = 600$	12:5	3	M1 for $\frac{60}{100} \times 1000$ oe A1 for 600 A1 cao
	600: 250			
5	(a)	$x + 2$	1	B1
	(b) $x + 5 + x + 5 + x + 2 + x + 2$	$4x + 14$	2	M1 adding 4 sides, two of which must be ' $x + 2$ ' (all sides to be linear expressions in $x$ ) A1 for correct simplified answer
	(c) " $4x + 14$ " = 20	1.5	2	M1 for equation " $4x + 14$ " = 20 OR $\frac{20 - 14}{4}$ oe A1 cao

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6	(a)	$2p - q$	2	B1 cao for $2p$
	(b) $5x = 3 + 4$	1.4	2	B1 cao for $-q$ accept $-q + 2p$ and $2p - 1q$ M1 for either (+3 or sight of 7) or ( $\div 5$ or sight of 0.8 and 0.6) A1 cao accept $\frac{7}{5}$ or $1\frac{2}{5}$
7	(a)	$\frac{4 \times 5}{2}$	1	B1 cao
	(b) $1 + 2 + 3 + 4 + 5 + 6 + 7 + 8$	$\frac{8 \times 9}{2}$	1	B1 cao
	(c) $\frac{100 \times 101}{2}$	5050	1	B1 cao
	(d)	$\frac{n(n+1)}{2}$	2	B2 cao (B1 for any quadratic in $n$ )
8	$3.2 \times 2.8 = 8.96$ $2 \times 4.5 \times 2.8 = 25.2$ $2 \times 4.5 \times 3.2 = 28.8$ $\frac{62.96}{2.5} \times 2.99$	75.30	5	M1 for area of any face found correctly M1 for 2 areas seen A1 for 62.96 or 54 M1 for $\frac{'62.96'}{2.5} \times 2.99$ A1 cao Alternate method for candidates who round up $\frac{'62.96''}{2.5}$ M1 for "26" $\times 2.99$ A1 for £77.74 cao SC: for top included B2 for 71.92 m <sup>2</sup> seen or B3 for £86.02 or £86.71 SC: B4 for £64.58 or £65.78 seen

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9	$2.5 \times 10000$	25000	2	M1 for $2.5 \times 10000$ or $2.5 \times 100 \times 100$ A1 cao
10	(a) $\Sigma f = 90$ (88), 144, 32, 96	Angles drawn, labelled	3	M1 for 1 person = $4^\circ$ or one angle correct in table or pie chart A1 any 2 angles correctly drawn in pie chart A1 fully correct chart labelled
	(b) $0.38 + 0.27 + 0.15$	0.20	2	M1 1 – sum A1 cao
11	0   5 7 8 8 1   0 0 0 0 2 5 5 5 6 2   0 0 0 4 5 3   3 5  Key 1   3 = 13 (min)	See working column	3	B1 for stem 0, 1, 2, 3 or 0, 10, 20, 30 B1 for accurate unordered leaves condone 1 error or omission B1 for key and ordered leaves all correct
12	(a) $V = \pi \times 4^2 \times 10$	502 – 503	2	M1 for $\pi \times 4^2 \times 10$ A1 502 – 503
	(b) $P^2 = 10^2 + 8^2$ $P = \sqrt{164}$	$\sqrt{164} < 13$	3	M1 for sight of a correct right-angled triangle M1 for $10^2 + 8^2$ A1 for conclusion based on a correct calculation or 12.8 seen
13	(a) $2 \times 30$  $2 \times 48$	$2 \times 2 \times 3 \times 5$  $2^5 \times 3$	4	M1 for systematic method, eg division, factor trees (at least one prime) A1 cao M1 for systematic method, eg division, factor trees (at least one prime) A1 cao
	(b)	12	1	B1 cao
	(c) $2^5 \times 3 \times 5$	480	2	B2 cao B1 for $2^5 \times 3 \times 5$ or any correct common multiple

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14	(a)	$150 < C \leq 200$	2	M1 use of cum freq to find the cost of the 20 <sup>th</sup> or 20.5 <sup>th</sup> car OR $\frac{1}{2} \Sigma f$ or $\frac{1}{2} (\Sigma f + 1)$
	(b)	No, because the 21 <sup>st</sup> value is in the same interval	1	A1 eg 150 to 200 B1 20.5 <sup>th</sup> or 21 <sup>st</sup> in same interval or an alternative correct explanation
	(c)	6500	3	M1 for $(100 - 20) \% = 5200$ M1 for $\frac{5200}{80} \times 100$ A1 cao
15	(a)	AG	2	M1 for $x \times x \times (x + 1)$ or $x \times x \times x + 1$ oe A1 cao from $x \times x \times (x + 1)$
	(b)	5.8	4	B 2 for trial between 5.8 and 5.9 inclusive (B1 for different trial between 5 and 6 inclusive) B1 for different trial between 5.8 and 5.85 (not including 5.8) B1 (dep on at least one previous B1) cao for 5.8, 5.81, 5.811
				5.1 – 158.7 5.2 – 167.6 5.3 – 177.0 5.4 – 186.6 5.5 – 196.6 5.6 – 207.0 5.7 – 217.7 5.8 – 228.8 5.9 – 240.2 5.85 – 234.4

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16	$\pi \times \left(\frac{15}{2}\right)^2 = 176.715$	88.4cm <sup>2</sup>	3	M1 for $\pi \times \left(\frac{15}{2}\right)^2$  A1 88.3 – 88.4 B1(ind) for cm <sup>2</sup>
17	(a) $5 = 0.5x + 1$	8	2	M1 for $5 = 0.5x + 1$ A1 cao
	(b)	$y = \frac{1}{2}x + c$	1	B1 $y = \frac{1}{2}x + c, c \neq 1, \text{ oe}$
	(c)	$x = 2y - 2$ OR $x = 2(y - 1)$	2	M1 for correctly multiplying both sides by 2 or correctly isolating $\frac{x}{2}$  A1 for $x = 2(y - 1), x = \frac{y-1}{0.5}, x = \frac{y-1}{\frac{1}{2}}$ oe  SC: B1 for $x = 2y - 1$
18	$4x - 6y = 22$ $15x + 6y = 54$ $19x = 76$	$x = 4, y = -1$	4	M1 for coefficients of $x$ or $y$ the same followed by correct operation , one arithmetical error A1 cao M1(dep on previous M mark) for sub for other variable A1 cao Trial and improvement –0 unless both $x$ and $y$ correct values found

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19	(a) $SF = \frac{10}{6}$ $\frac{10}{6} \times 4.8 = 8$	8	2	M1 for sight of $\frac{10}{6}$ or $\frac{6}{10}$ or 1.67 or better or $\frac{CD}{10} = \frac{4.8}{6}$ A1 cao
	(b) $\frac{10}{6} \times 4.5 - 4.5 = 3$	19.8	2	M1 for use of SF from (a) to find <i>BC</i> or <i>AC</i> and adding 4 sides A1 cao
20	$\frac{6 \times 10^{15}}{3.2 \times 10^8}$  $1.875 \times 10^7$	$4.3 \times 10^3$	3	B3 for $4.3 \times 10^3$ to $4.34 \times 10^3$ (B2 for $1.875 \times 10^7$ oe or 4300 to 4340 or final answer of $1.9 \times 10^7$ ) (B1 for sight of $6 \times 10^{15}$ oe or $3.2 \times 10^8$ oe)
21	$8.5 \times \tan 38 = 8.5 \times 0.7813$	6.64	3	M1 for correct use of trig, eg $\tan 38 = \frac{opp}{8.5}$ M1 for $8.5 \times \tan 38$ A1 6.64 – 6.641

