

Paper 5523/03				
No	Working	Answer	Mark	Notes
1	$0 \times 9 + 1 \times 8 + 2 \times 12 + 3 \times 5$	47	2	M1 fx (could be implied from least 2 correct) A1 cao SC: B1 for 56
2	(a) $2 \times 5 = 10$ $40 \div 10 = 4$ OR $(40 \div 5) \div 2 = 4$ (b) $(200 \div 50) \times (100 \div 20) \times (100 \div 20)$ $= 4 \times 5 \times 5 =$	4 100	2 3	M1 2×5 or $40 \div 5$ or $40 \div 2$, or 10, 8, 20 seen A1 cao M1 Attempt one division (eg $200 \div 50$), or find one volume $200 \times 100 \times 100$ or $50 \times 20 \times 20$ M1 $(200 \div 50) \times (100 \div 20) \times (100 \div 20)$, or “2000000” \div “20000” A1 cao
3	(a) Point B marked (b) $6 \times 50000 = 300000$ $300000 \div 100000$	3km	2 3	B1 correct bearing of $320^\circ \pm 2^\circ$ B1 correct length of 60 mm ± 2 mm M2 $6 \times 50000 \div 100000$ (M1 for 6×50000 or $\div 100000$ or $60 \dots \times 50000$) A1 cao SC B2 for 3 followed by one or more 0s
4	eg gives an example that demonstrates that the addition of two consecutive numbers can be a square number $4+5=9$		2	B1 shows addition of two consecutive numbers B1 shows their choice of numbers adds to a square number (do not need to demonstrate it is square)
5	(a) $\pounds 1 \div 25\text{p} = 100 \div 25 = 4$ $15 \times 4 = 60$ (b) eg $10\%+5\%+2.5\% = \pounds 5 + \pounds 2.50 + \pounds 1.25$ So VAT = $\pounds 8.75$ Total cost is $\pounds 50 + \pounds 8.75 =$	60 $\pounds 58.75$	3 3	M1 Conversion of \pounds to p eg $\times 100$ or 1500 M1 (indep) $15 \div 25$, $100 \div 25 = 4$ (or 4 as a digit seen) A1 cao M1 5, 2.5(0), 1.25 or $17.5 \div 2$, $50 \times 17.5 \div 100$ oe M1 “ $\pounds 8.75$ ” + $\pounds 50$ where the “ $\pounds 8.75$ ” has been derived from a percentage calculation OR M2 for 50×1.175 oe A1 cao
6	$6 \times 5 \div 2 = 15$ $15 + 24 =$	39	3	M1 attempt to find area of one shape eg 12×2 or $\frac{1}{2} \times 6 \times 5$ M1 attempt to find area of second shape A1 cao

Paper 5523/03

No	Working	Answer	Mark	Notes
7	$50000 \div 10^2 = 50000 \div 100 =$	500	2	M1 for $50000 \div 10^2$ A1 cao
8	(a)	Positive	1	B1 two points ± 1 full square tolerance
	(b)		1	B1 for Positive; ignore “strong” etc
	(c)		1	B1 for line of best fit which passes across (50,50), (50,60) and (20,20), (20,30)
	(d) French 26 \rightarrow German 43 \rightarrow		2	B1 29-32 or ft (dep on a single straight line of positive gradient) ± 1 full square B1 38-41 or ft (dep on a single straight line of positive gradient) ± 1 full square
9	(a)	$T=4n+3c$	3	M1 sight of $4n$ M1 sight of $3c$ A1 cao
	(b) $47=4 \times 8 + 3c$ $3c=47-32$ $3c=15$	5	3	M1 sight of 4×8 or 32 (could be in an equation) M1 (dep) $3c = 47 - “32”$ or $3c = 15$ or $47 - “32”$ or 15 A1 cao
10	(a)	$5a+2b$	2	B2 cao (B1 for either $5a$ or $2b$)
	(b)	$2x^3$	1	B1 cao
	(c)	$x(x-3)$	2	B1 $(x-3)$ or x (linear expression) B1 cao

No	Working	Answer	Mark	Notes
11	$\frac{1}{5} + \frac{3}{8} = \frac{8}{40} + \frac{15}{40} = \frac{23}{40}$	$\frac{17}{40}$	3	M1 for attempting to convert to fractions with common denominators eg two fractions with denominator of 40 oe A1 for getting $\frac{23}{40}$ oe A1 for $\frac{17}{40}$ oe (B1 for getting 1 - " $\frac{1}{5} + \frac{3}{8}$ " correctly evaluated) OR attempts to convert to decimals: must use at least 2 dp for 3/8 M1 0.2 + 0.37 or 0.2 + 0.38 or 0.2 + 0.375 A1 for 0.43 or 0.42 or 0.425
12	(a) $\begin{array}{r} 127.50 \\ 14 \overline{)1738105.700} \end{array}$	£127.50	3	B1 for 1,2 B1 for 7 Accept 127.5 B1 cao OR M1 for $\div 2$ and $\div 7$ A1 for 255 or 892.5 B1 cao (b) $1785 \times 2 \div 5 =$ M1 1785×2 or $1785 \div 5$ or $1785 \div "(2+3)"$ A1 cao Accept £714 and £1071 given.

Paper 5523/03

No	Working	Answer	Mark	Notes
13	(a) (i) $1 - 0.2 =$ (ii) $1 - (0.35 + 0.15 + 0.2) =$ (b) $0.15 \times 300 =$	0.8 0.3 45	3 2	B1 oe M1 for $0.35 + 0.15 + 0.2$ A1 oe M1 for 0.15×300 A1 cao NB: $\frac{45}{300}$ M1 A0, 45 out of 300 gets M1 A1
14		$30 < C \leq 40$	2	M1 evidence of attempt to find the position in which the median lies (eg counting or $\sum \frac{f}{2}$ or $\sum \frac{f+1}{2}$) A1 cao NB: $\frac{33}{2}$ leading to correct answer M1A1 but leading to 20-30 award M1A0; also 33+1
15	(a) (b)		2 2	B2 line through C, at least 50mm long, fully within the overlay. (B1 at least 25mm of line in the overlay lines, or fully in the overlay and less than 50mm long) B2 solid shaded circle 28-32 mm from B (B1 attempt to draw a shaded circle around B, any radius, OR unshaded circle within tolerance, or shaded sector correct tolerance)
16	Eg $6 \times 300 \div 0.5 =$ $10 \times 312 =$	3000-3750	3	B2 for 6, 300 and 0.5 seen, or 10 & 300, or 10 & 312, or 10 & 310, or 1800 & 0.5, or 1500 & 0.5, 1860 & 0.5, 1872 & 0.5 (B1 for one of 6, 300, 0.5, 10 or 600 seen) B1 cao

Paper 5523/03

No	Working	Answer	Mark	Notes
17	(a) $x+10+2x+x+90+(x+20) = 360$		2	M1 for $x+10+2x+x+90+x+20$ or $5x+120$ or an indication of adding the terms on the paper A1 cao
	(b) $5x+120 = 360$ $5x = 240$ $x = 48$ Smallest angle is $x + 10 =$	58	3	NB: algebra seen in (b) can attract marks in (a) M1 for simplifying to at least " $5x+120 = 360$ " (their equation) A1 $x = 48$ or 48 seen cao B1 ft (adding 10) NB: M1 A1 can be awarded if this work is seen in (a)
18	$2 \times 3.14 \times 10 = 62.8$ (62.8-62.9) $62.8 \div 2 = 31.4$ (31.4-31.5) $31.4 + 20 =$	51.4-51.5	3	M1 for $2 \times 3.14 \times 10$ or $\pi \times 20$ or $2 \times \pi \times 10$, or $3.14 \times 20/2$ or or $\pi \times 20/2$ or $2 \times \pi \times 10/2$ or 62.8 A1 for 31.4-31.5 seen for arc length B1 ft (indep) for "31.4" + 20 or 51.4-51.5 NB: allow use of 3.142, 3.1, 3, 22/7 instead of 3.14
19	(a)	4.0×10^7	1	B1 cao
	(b)	0.000014	1	B1 cao
	(c)	3.0×10^{14}	2	B2 cao accept 3×10^{14} (B1 for 30×10^{13} or $5 \times 6 \times 10^{4+9}$) SC: B1 for correct answer as an ordinary number
20	$QRP = 57^\circ$ $x = 2 \times 57 =$	114°	3	M1 for $QOP=2 \times 57^\circ$ or $QRP=57^\circ$ in working or on the diagram. A1 114° cao B1 angle at circumference is half angle at centre
21		$1^{\text{st}}, 4^{\text{th}}$	2	B1 for 1^{st} B1 for 4^{th} NB: -B1 for each additional box ticked, to a minimum of 0.
22	$\frac{2}{5}, \frac{5}{7}, \frac{2}{7}, \frac{5}{7}$		2	B1 for $\frac{2}{5}$ in the correct place B1 for $\frac{5}{7}, \frac{2}{7}, \frac{5}{7}$ all in the correct place

No	Working	Answer	Mark	Notes
23	(a) $x^2 - xy - xy + y^2$	$x^2 - 2xy + y^2$	2	M1 for 3 terms correct with sign, or 4 terms correct ignoring signs, or $x^2 - 2xy - y^2$
	(b) $aq - ac = d$ $aq = ac + d$	$\frac{ac+d}{a}$	3	A1 cao B1 $aq - ac$ M1 for $+ac$ or $\div a$ both sides OR B2 $q - c = \frac{d}{a}$ B1 $q = \frac{d}{a} + c$, $q = d \div a + c$ oe
24	(a) Reason		1	B1 Reason eg fall is less than 100%
	(b) $0.8^2 = 0.64$ $(100\% - 20\%)^2$	0.64	2	B1 sight of 0.8 B1 cao
25	(a) Box plot drawn		3	B1 for median marked at 32.0 – 33.5 B1 for position of box with its ends at 24.0 - 26.5 and 37.0 - 39.5
	(b) Reasons given		2	B1 for position of ends of whiskers at 5 and 47 B1 (ft) for “greater median” for part 2 B1 (ft) for “smaller inter-quartile range” for part 2 Accept comparisons of lower and upper quartile.
26	(a) $-4 = 2a - 3$	$-\frac{1}{2}$	2	M1 for $-4 = 2a - 3$ or x shown as $\frac{1}{2}$
	(b) $y = 2x + c$ $4 = 2 \times 3 + c$, $c = -2$	$y = 2x - 2$	3	A1 $-\frac{1}{2}$ or $(-\frac{1}{2}, -4)$ M1 for $y = 2x + c$ ($c \neq -3$) or gradient = 2 M1 (indep) attempt to subs $x=3$, $y=4$ into any linear equation A1 for $y = 2x - 2$ SC B2 for $2x-2$