

Paper 5523/04

No	Working	Answer	Mark	Notes
1	(a) 475×1.57	745.75	2	M1 for 475×1.57 A1 cao
	(b) 650×0.16	104	2	M1 for $650 \times \frac{16}{100}$ A1 cao
2	(a)	$x = 4$	1	B1 cao
	(b) $2y = 13 + 1$	$y = 7$	2	M1 for +1 to both sides A1 cao
3	$138 - 65 = 73$ $360 - 73$	287	3	M1 $180 - 138 = 42^\circ$, 107° seen M1 $180 - (65 + 42) = 73^\circ$ seen A1 for 287° cao
4	(a)		3	B3 all 3 correct B2 2 correct B1 1 correct
	(b)		2	B2 at least 5 correct (B1 two pairs together at a single point (ignore remainder of diagram))
5	(a)	Graph completed	2	B2 cao tol ± 1 mm (B1 if either section correct)
	(b)	Line drawn	1	B1 cao tol ± 1 mm
	(c)	(19)	1	B1 ft from graph – at any intersection between a line segment of negative gradient and a line associated with the passenger train
6	1kg of apples is $\pounds 3.36 \div 4 = \pounds 0.84$ Cost of 2.5kg of pears is $\pounds 4.12 - 3 \times \pounds 0.84 = \pounds 1.60$ Cost of 1 kg of pears = $\pounds 1.60 \div 2.5$	64p	3	M1 for $3.36 \div 4$ or any of 0.84, 84, 2.52, 252 seen M1 for $4.12 - 3 \times 0.84$ or 1.6(0), 160 seen A1 cao SC M2 A0 for 0.64

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7	(a)	2	1	B1 cao
	(b)	37	1	B1 cao
	(c)	27	1	B1 cao
8	(a)	$8x + 8(x+2)$	2	M1 for $8x$ or $8(x+2)$ oe or $16x$ seen as single terms; $8x(x+16)$ gets M0 A1 oe eg $16x+16$ or $16(x+1)$ or $8(2x+2)$ NB $x=8x+8(x+2)$ gets M1 A0
	(b)(i)	$8x + 8(x+2) = 72$	5	B1 for "(a)"= 72 or $8x+8(x+2)=72$
	(ii)	$8x + 8x + 16 = 72$ $16x = 72-16$	£3.50 £5.50	M1 for bringing xs, or numbers, together (eg sight of $16x$ in (a) or (b) or $72-16$), not necessary in an equation M1 for correct rearrangement of the equation (eg $16x=72-16$) A1 for 3.50 or 3.5 A1 for 5.50 or 5.5 SC: B1 if M0 and one answer correct
9	(a)	$12 \times 25000 = 300000$	3 km	3 M1 for 12×25000 or 12×2.5 or 12×25 A1 for 300000 or 30(00...) A1 cao for 3
	(b)	Correct drawing		2 B2 both angles drawn correctly ($\pm 2^\circ$) (B1 cao either 064 or 312 drawn correctly ($\pm 2^\circ$)) NB: if one point only given then measure the angles from the given point [26° at A, $\frac{42^\circ}{318^\circ}$ at B]
10		$8 \times 5 \times 4 = 160$ tiles $160 \times \text{£}4.19 = \text{£}670.40$	£670.40	3 M1 for $8 \times 5 \times 4$ or $8 \times 5 \times 2$ or 8×5 or 16×10 or $800 \div 50$ oe or $500 \div 50$ oe M1 (indep) for $\times 4.19$; can be implied A1 for 670.40 or 670.4

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11	(a) $\pi \times 12$	37.7cm	2	M1 for $\pi \times 12$ A1 for 37.68 – 37.71
	(b) $0.5 \times 10 \times 10 = 50$ $50 \times 4 = 200$	200cm ²	2	M1 for $0.5 \times 10 \times 10$, $0.5 \times 10 \times 20$, $0.5 \times 20 \times 20$, $\sqrt{(10^2 + 10^2)}$, or 5 seen A1 cao for 200
12	(a) $\frac{108}{240}$	45%	2	M1 for $\frac{108}{240}$ A1 cao
	(b) $.4 \times 240 + .7 \times 200 = 96 + 140$ $\frac{236}{440} \times 100$	53.6%	3	SC: B1 for 55% if M0 M1 for either 0.4×240 or 0.7×200 or 96 or 140 seen A1 (dep) for $0.4 \times 240 + 0.7 \times 200$, (96+140) or 236 seen A1 53 – 54%
13	(a)	Correct plots	1	B1 cao ± 1 for full square tolerance
	(b)	Description	1	B1 description of relationship or correlation
	(c)	LOBF	1	B1 between verticals: (3000,1300),(3000,1500) and (500,200),(500,400)
	(d)	(£1170)	1	B1 ft from lobf dep on a single straight line segment of positive gradient ± 1 full square (± 20)
	(e) Read off at £1000 (2080) and then $\div 48$	(43cm)	2	B2 for answers in the range 36 – 49 or M1 read off and $\div 48$, ft from lobf dep on a single straight line segment of positive gradient ± 1 full square (± 20). A1 ft or 36cm – 49cm

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14 (a)	8000×1.05^3 8000, 8400, 8820, 9261, (9724.05)	£9261	3	M1 for $\frac{5}{100} \times 8000$ or $\frac{105}{100} \times 8000$ oe or any one of the following seen: 400, 8400, 1200, 9200 M1 (dep) complete method for 3 yrs compound interest A1 cao SC B2 for £1261 without working OR M1 for 8000×1.05^n oe M1 for $n = 3$ A1 cao B1 cao
(b)		A	1	B1 cao
(c)	$3885 \div 105 \times 100$	£3700	3	B1 for sight of 105 or 1.05 M1 for $3885 \div 105 \times 100$ A1 cao
15 (a)	$200 \div 21.2 = 9.43396\dots$	9.43396	2	M1 for $200 \div 21.2$ (imply from 9.....) A1 for 9.43396...
(b)		9.4	1	B1 ft 2sf or 3sf on '9.43396'

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16	4.0	80	4.4	4	B2 for trial strictly between 4 and 5 evaluated (B1 for trial at either end) B1 for different trial between 4.3 and 4.4 exclusive B1 cao (dep) on at least one previous B1 NB need to see trials evaluated to at least 1dp (truncated or rounded)
	4.1	85.3(2)			
	4.2	90.8(9)			
	4.3	96.7(1)			
	4.4	102.7(8)			
	4.5	109.1(3)			
	4.6	115.7(4)			
	4.7	122.6(2)			
	4.8	129.7(9)			
	4.9	137.2(5)			
	5.0	145			
4.35	99.7(1)				

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17	(a) $8x + 4 = 6 - 2x$ $8x + 2x = 6 - 4$	0.2	3	M1 for at least one correct expansion A1 ft for "+2x" and "-4" oe A1 0.2 oe
	(b)	$2p(p-2q)$	2	M1 for p or $2p$ as a common factor with (two terms) and at least one term that is algebraic eg in working A1 cao
	(c)	$(x+1)(x+6)$	2	SC B1 $p-2q$ or $2p-4q$ or $(2p+0)(p-2q)$ M1 $(x+a)(x+b)$ with $ab = 6$ A1 cao
18	(a)	$\frac{30}{100}$	1	B1 cao
	(b) 250×0.7	175	2	M1 for 250×0.7 A1 cao NB $\frac{175}{250}$ gets M1 A0, 175 out of 250 gets M1 A1
19	$\tan P = 5 \div 12.5$	21.8	3	M1 for correct use of $\tan P = 5 \div 12.5$ (accept $\tan 5 \div 12.5$) M1 for $\tan^{-1}\left(\frac{5}{12.5}\right)$ oe, condone $\tan^{-1} 5 \div 12.5$ A1 21.8-21.81 NB 6.29 – 6.3 gets M2 A0 by implication
20	$17^2 - 10^2 = 189$	13.7cm	3	M1 for $17^2 - 10^2$ or $10^2 - 17^2$ M1 for $\sqrt{(289-100)}$ or $\sqrt{189}$ A1 13.7-13.75 SC: B1 for $17^2 + 10^2$ leading to 19.7 – 19.75

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21	$\sqrt{\frac{8.8 + 7.2 \sin 40}{8.8 - 7.2 \sin 40}}$ $= \sqrt{\frac{13.428}{4.172}} = \sqrt{3.218}$	1.79	3	M1 for correct substitution of all values into numerator or denominator (separately) condoning $\sin x 40$, or for $\frac{40.72}{10.28}$ (=3.96) or for $\frac{48.8}{8.8}$ (=5.54) A1 for 13.4(28) or 4.1(72) or 3.2(18) A1 1.79-1.8
22	$L_2 y = 2x + c$ $C = 2 - 2 \times 3 = -4$	$y = 2x - 4$	3	M1 for $y = 2x + c, c \neq 3$ (any line parallel to $y = 2x + 3$) or statement "gradient is 2" M1 for $2 = 2 \times 3 + c$, any clear attempt to substitute into any equation of the form $y = 2x + c, c \neq 3$ A1 cao
23	(a) $60 \times 2.8 = 168$ $40 \times 3.3 = 132$ $(168 - 132) \div 20$ (b)	1.8 $p = q$ Lists are the same size	3 2	B1 for either 60×2.8 or 40×3.3 or 168 or 132 or 36 M1 for $(60 \times 2.8 - 40 \times 3.3) \div 20$ A1 cao B1 cao $p = q$ B1 cao Lists have the same number of members, are the same size, have the same numbers
24	(a) $\frac{CD}{5} = \frac{10}{4}$ (b) $4.8 \times 2.5 - 4.8$	12.5 7.2	2 2	B1 for sight of $\frac{10}{4}$ or $\frac{4}{10}$ or 2.5 or 0.4 or 1.25 oe B1 cao for 12.5 M1 for 4.8×2.5 or sight of 12 A1 cao