

Paper 5523_04				
No	Working	Answer	Mark	Notes
1	P marked at top left and bottom		2	B2 for both correct (B1 for one correct) (-B1 each error if more than 2 Ps)
2	(a) $4.5 \times 2.5$	11.25	2	M1 for $4.5 \times 2.5$ or sight of digits 1125 A1 for 11.25
	(b) $\sqrt{324}$	18	2	M1 for $\sqrt{324}$ A1 for 18
3	(a)	150	1	B1 for $150 \pm 5$
	(b) It might have rained or they may have run out of ice-cream		1	B1 for valid reason
4	(a)	$3e + 2f$	1	B1
	(b)	$4xy$	1	B1
	(c)	$2a + 7b + 8$	2	B2 for $2a + 7b + 8$ (B1 for either $2a$ or $7b$ )
5	(a) $5 + 10 \times 4.50$	50	2	M1 for $10 \times 4.50$ or 45 seen A1 for 50
	(b) $65 - \frac{65}{5}$	52	2	M1 for $65 \div 5$ oe or 13 seen A1 for 52
	(c) $50 + \frac{17.5}{100} \times 50$	58.75	2	M1 for $\frac{17.5}{100} \times 50$ oe or 5, 2.5(0) and 1.25 seen or 8.75 seen or digits 5875 A1 for 58.75
6		22 $4n + 2$	3	B1 for 22 B2 for $4n + 2$ oe ( B1 for $4n \pm k$ , $k \neq 2$ )

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7	$960 \text{ bricks in } \frac{960}{200}$ = 4.8 hours	4 hr 48 min	3	M1 for $\frac{960}{200}$ or valid partitioning method leading to 900 A1 for 4.8 seen A1 for 4 hours 48 mins cao (SC: B2 for 4 hours 8 minutes or 4 hours 80 minutes B1 for 4 hours < answer < 5 hours)
8	(a) $200 \times 1.40$ (b) $10.64 \div 1.33$ (c) $1.40 - 1.33 = 0.07$ $"0.07" \div 1.40 \times 100$	280 8.00 5%	2 2 3	M1 for $200 \times 1.40$ or 28000 seen A1 for 280 cao M1 for $10.64 \div 1.33$ A1 for 8 cao M1 for $1.40 - 1.33$ or 0.07 M1 (dep) for $"0.07" \div 1.40 \times 100$ A1 cao Or M1 for $\frac{1.33}{1.40} \times 100$ M1(dep) for 100 - "95" A1 cao
9	(a) (b)	2 28	1 2	B1 cao M1 for identifying 16 <sup>th</sup> and 17 <sup>th</sup> or sight of $(32 + 1) \div 2$ oe A1 cao
10	(a) $3.14 \times 50 \times 50$ (b) $3.14 \times 40$	7854 126	2 2	M1 for $\pi \times 50 \times 50$ (accept $\pi$ as 3.1 or better) A1 for 7750 to 7860 or $2500\pi$ M1 for $\pi \times 40$ (accept $\pi$ as 3.1 or better) A1 for 124 to 126 or $40\pi$

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11		Positive	1	B1 for positive
(a)			1	B1 for correct line within (50, 50) , (50 , 60) , (10,10), (10,20)
(b)			1	Do not accept line joining (10,10) to (50,50)
(c)		Approx 47	1	B1 ft from single line segment with positive gradient $\pm 1$ full ( 2 mm) square.
12	$380 \div 200 = 1.9$ $350 \div 175 = 2$	Rob, less pence per gram	2	M1 for $380 \div 200 (= 1.9)$ and $350 \div 175(=2)$ oe or $200 \div 380 (=0.526)$ and $175 \div 350 (=0.5)$ oe or for any valid complete method for comparing the two tubs A1 for Rob with correct calculations
13		80	2	M1 for $10 + 10 \times 7$ A1 for 80 cao
(a)	$10 + 10 \times 7$		2	M1 for $-2.5 + 10 \times 3.2$ A1 for 29.5
(b)	$-2.5 + 10 \times 3.2$	29.5		
14			2	B2 for correct triangle with arcs ( B1 for correct triangle ; no arcs)
(a)			2	M1 for two pairs of correct intersecting arcs A1 for correct perpendicular bisector SC if no marks , B1 for line within guidelines
(b)				
15	$2 \times 2.50 + 3 \times 1.25 = 8.75$ "8.75"-6.50	2.25	4	M1 for $2 \times 2.50$ or $3 \times 1.25$ A1 for 8.75 M1(dep on 1 <sup>st</sup> M1) for "8.75"- 6.50 A1 ft for 2.25
16	No because when $n = 6$ $6n - 1 (= 35)$ is not prime		2	B2 for correctly showing that when $n = 6$ 35 is obtained and identified oe ( B1 for correctly evaluating $6n - 1$ for at least 3 different whole number values of $n$ or for 35 oe with no working)

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17	$3\% = 0.72$ $1\% = 0.24$ $100\% = 24$ $103\% = 24.72$	24.72	3	M1 for $3\% = 0.72$ or $0.03x = 0.72$ M1 for $1\% = 0.24$ oe or 24 or $0.72 \times 33.3$ or $\frac{0.72}{3} \times 100$ A1 for 24.72 SC B2 for 24 seen
18	(a)(i)	$x^9$	1	B1 cao
	(ii)	$p^5$	1	B1 cao
	(iii)	$12s^6t^5$	2	B2 cao (B1 for two of $12, s^6, t^5$ in a product)
	(iv)	$q^{12}$	1	B1 cao
	(b)	$6g - 3$	1	B1 cao
	(c)	$x^2 + 5x + 6$	2	B2 for $x^2 + 5x + 6$ (B1 for 3 out of 4 parts correct in working)
19	$4^2 + 6^2$ $16 + 36 = 52$ $\sqrt{52}$	7.21	3	M1 for $4^2 + 6^2$ or $16 + 36$ or 52 M1 for $\sqrt{16 + 36}$ or $\sqrt{52}$ A1 for 7.21 to 7.212
20	$36 \div 9$ 1 part = 4 $8 : 12 : 16$	A 8 B 12 C 16	3	M1 for $36 \div (2+3+4)$ M1 (dep) for $2 \times "4"$ or $3 \times "4"$ or $4 \times "4"$ A1 cao
21	(a)	$35 \leq t < 40$	1	B1 for correct interval
	(b)	34.75	4	M1 for fx consistently within interval including ends (allow 1 error) M1 (dep) fx using mid points M1 (dep on 1 <sup>st</sup> M) for $\sum fx \div \sum f$ A1 for 34.75 or 34.7 or 34.8

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22		Rotation 180° centre (0,0)	3	B1 for rotation B1 for 180° B1 for (0,0) Or B2 for enlargement , scale factor – 1 B1 for centre (0,0) SC if no marks , B1 for correct reflections
23 (a)	$\tan a = \frac{5}{6}$  Angle $a = 39.8$	39.8°	3	M1 for sight of $\tan (a =) \frac{5}{6}$  M1 for $\tan^{-1}(\frac{5}{6})$ or $\tan^{-1}(0.83)$ to $\tan^{-1}(0.834)$ A1 for 39.8 to 39.81 SC 0.692 to 0.695 or 44.2 to 44.24 seen gets M1M1AO
(b)	$\sin 40^\circ = \frac{x}{10}$ $x = 10 \times \sin 40$	6.43	3	M1 for $\sin 40 = \frac{x}{10}$ M1 for $10 \times \sin 40$ A1 for 6.427 to 6.43 SC 7.45... or 5.87... seen gets M1M1AO
24		$\frac{1}{4}$  $\frac{2}{3} \quad \frac{1}{3} \quad \frac{2}{3}$	2	B1 for $\frac{1}{4}$ correct on tennis  B1 for $\frac{2}{3}, \frac{1}{3}, \frac{2}{3}$ correct on snooker
25 (a)	$\frac{\sqrt{6.06}}{1.985}$	1.24015	2	B2 for 1.24015..... (B1 for sight of 2.46(...) or 1.985 or 1.24(...))
(b)		1.24	1	B1ft for any answer to (a) correctly rounded to 2, 3 or 4 significant figures
26	$3.25 \div 25 \times 35$	4.55	2	M1 for $3.25 \div 25 \times 35$ A1 for 4.55 cao

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27	Adding gives $7a = 21$	$a = 3$ $b = -2$	3	M1 for a complete method which leads to a single equation in $a$ or $b$ only (allow 1 error) M1 (dep) substitute found value of $a$ or $b$ into one equation A1 cao SC :B1 for one correct answer only if Ms not awarded
28		P & C Q & D R & B S & A	2	B2 for all correct (B1 for 2 or 3 correct)