Paper 1MA1: 3H

Question	Working	Answer	Notes
1(a)		(4,10)	B1 cao
1(b)(i)		Line drawn	B1 Straight line drawn passing between (2,20) and (2,30) AND (13,86) and (13,94)
1(b)(ii)		Positive	C1 positive
1(c)		Value between 60 and70	C1 a correct value given
1(d)		Statement	C1 for referring to the danger of extrapolation outside the given range or for a given point Eg line of best fit may not continue or full marks are hard to achieve no matter how much revision is done
2		$12.5 \leq L < 13.5$	B1 12.5 B1 13.5
3		$y = 2x + 1$	M1 for a method to find the gradient M1 for a method to find the c in $y = mx + c$ A1 $y = 2x + 1$ oe in this format
4(a)	$(720+408+304+252) \div 50$	33.68	M1 for finding 4 products fw consistently within interval (including end points) M1 (dep on 1st M) for 'Σ$fw \div 50$ A1 cao

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Question	Working	Answer	Notes
4(b)		Manager with reasons	M1 for strategy to compare number of small size sold to number ordered C1 clear comparison that small size is not ¾ and so Jenny is not correct or the manager is correct
5(a)	160 tiles 18 packs	18	M1 a full method to find the area of the trapezium M1 a full method to convert all areas to consistent units M1 for the area of the trapezium ÷ area of a tile M1 for communication of the number of whole packs required A1
5(b)	176 tiles 20 packs	Supported statement	P1 finding that 10% extra requires two more packs or 10% of 18 C1 Statement eg increase in packs is 2 more which is more than 10%
6		$(x-1)(x+4)$	M1 $(x \pm 1)(x \pm 4)$ A1 $(x-1)(x+4)$ oe
7		A and D	C1 in any order
8(a)		2500	P1 for use of 1.03 P1 for a full method equivalent to ÷1.03² A1 2500
8(b)		Saver account with support	P1 process to find a comparable total interest figure A1 for conclusion with supporting statement eg 21.(665...)>21
9		0.664(09...)	P1 for finding the difference in height by ratio or multiplier P1 for use of tan ratio P1 (dep) for 0.85÷tan52 A1 awrt 0.664

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Question	Working	Answer	Notes
10		Region R	M1 for one line correctly drawn M1 for two or more lines correctly drawn A1 for a correct region indicated between two correct lines A1 fully correct region indicated with all lines correct
11		$(x+1)^2 - 9$	M1 for $(x+1)^2$ A1 cao
12		431	B1 for use of Pythagoras involving the unknown length P1 for setting up an equation equivalent to $x^2 = 15^2 - 5^2 - 7^2$ P1 for finding the volume using their "$\sqrt{15^2 - 5^2 - 7^2}$" A1awrt 430.5
13		168	M1 product of 14 and 12 A1 cao
14		$\dfrac{3x + 10}{x + 2}$	B1 for factorising to get $(x+3)(x+2)$ M1 for dealing with the division of $(x+3)$ by $\dfrac{x^2+5x+6}{x-2}$ M1 for two correct fractions with a common denominator or a correct single fraction A1 $\dfrac{3x+10}{x+2}$
15(a)		3906	P1 1000 000 ÷ 256 A1 3906 or 3907 or 3900 or 3906.25
15(b)		Decision	C1 Decision and supporting statement Eg no never zero or yes cannot have a part error Note just yes or no will score zero

Question	Working	Answer	Notes
16		(6, −1)	M1 for a method showing the translation of a graph or a correct coordinate A1 cao
17	$l = 20x$ $x = 3$	20736	P1 for a method to find the slant height of the cone eg $\sqrt{16x^2 + 12x^2}$ or by similar triangles and Pythagorean triples P1 for setting up an equation for the curved surface area in terms of x eg $2160\pi = \pi \times 12x \times 20x$ P1 for complete method to find the value of x P1 for a method to find the volume A1 cao
18		0.49	P1 for $\sqrt{0.09}$ P1 for $(1-"\sqrt{0.09}")^2$ A1 cao
19(a)		4.23×10^{-4}	B1
(b)		45000	B1
20		55	P1 for $\sqrt{\dfrac{253.5}{6}}$ (=6.5) P1 for $2 \times "6.5"^3 \div 10$ (=54.925) A1 cao

Question	Working	Answer	Notes
21(a)		Re arrangement	M1 for re arranging to $x^3 =$ C1 a clear step to show re arrangement
21(b)	$x_1 = 3.29296875$ $x_2 = 3.276659786$ $x_3 = 3.279420685$	3.28	M1 for one correct iteration M1 for 2 further iterations seen A1 cao
21(c)		Statement	C1 Statement eg iteration is an estimation of the solution
22		Proof	B1 state the difference of two squares in algebraic notation eg $p^2 - q^2$ M1 for writing down expressions for the two different numbers eg $6n + 1$ and $6m + 1$ M1 for expanding one bracket to obtain 4 terms with all 4 correct without considering signs or for 3 terms out of 4 correct with correct signs A1 for $36(m^2 - n^2) + 12(n - m)$ oe M1 (dep M2) for extracting a factor of 12 from their expression C1 for fully correct working with statement justifying $(n - m)(3(n + m) + 1)$ as a multiple of 2 eg considering odd and even combinations