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)÷50	33.68	M1 for finding 4 products *fw* consistently within interval (including end points) M1 (dep on 1st M) for 'Σ*f*w÷50 A1 cao

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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 C1Statement 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 $\div 1.03^2$ 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		$\frac{3x+10}{x+2}$	B1 for factorising to get $(x+3)(x+2)$ M1 for dealing with the division of $(x+3)$ by $\frac{x^2+5x+6}{x-2}$ M1 for two correct fractions with a common denominator or a correct single fraction A1 $\frac{3x+10}{x+2}$
15(a) 15(b)		3906 Decision	P1 1000 000 ÷ 256 A1 3906 or 3907 or 3900 or 3906.25 C1 Decision and supporting statement Eg no never zero or yes cannot have a part error Note just yes or no will score zero

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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) (b)		4.23×10^{-4} 45000	B1 B1
20		55	P1 for $\sqrt{\frac{253.5}{6}}$ (=6.5) P1 for 2 × "6.5"^{3} ÷ 10 (=54.925) A1 cao

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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