Paper 1MA1: 3H				
Question	**Working**	**Answer**	**Mark**	**Notes**
19 **Q1**		$x < -2, x > \frac{1}{2}$	M1 A1 A1	for a first step to solve the quadratic e.g. factorisation: $(2x + 4)(x - \frac{1}{2})$ or $(2x - 1)(x + 2)$ or using the formula $\frac{-3 \pm \sqrt{3^2 - 4 \times 2 \times (-2)}}{2 \times 2}$ for -2 and $\frac{1}{2}$

Paper: 1MA1/1H				
Question	**Answer**	**Mark**	**Mark scheme**	**Additional guidance**
20 **Q2**	2, 3, 4	M1	for method to solve $3n + 2 \leq 14$ eg $n \leq (14 - 2) \div 3$ oe	This could be shown within an equation rather than an inequality at this stage
		M1	for complete method to rearrange $\frac{6n}{n^2 + 5} > 1$ to the form $an^2 + bn + c$ (< 0)	For the 2rd and 3rd M marks condone no '< 0' and condone use of incorrect inequality signs or '='
		M1	for method to begin to solve $n^2 - 6n + 5$ (< 0) eg $(n \pm 5)(n \pm 1)$ (< 0)	Accept $\frac{--6 \pm \sqrt{(-6)^2 - 4 \times 1 \times 5}}{2 \times 1}$ (condone one sign error)
		M1	(dep on previous M2) for $n > 1$ and $n \leq 4$ **or** $1 < n < 5$	Must come from correct working Could be shown on a number line
		A1	(dep M4) cao	
			Alternative method	
		M1	for method to solve $3n + 2 \leq 14$ eg $n \leq (14 - 2) \div 3$ oe **OR** for $3 \times 4 + 2 = 14$	This could be shown within an equation rather than an inequality at this stage
		M3	for trials with 1, 2, 3 and 4 in the quadratic inequality, correctly evaluated	The values from the trials may be given as improper fractions eg $\frac{24}{21}, \frac{18}{14}, \frac{12}{9}, \frac{6}{6}$
		(M2	for trials with three of 1, 2, 3 and 4, correctly evaluated)	
		(M1	for trials with two of 1, 2, 3 and 4, correctly evaluated)	
		A1	(dep M4) cao	

Paper: 1MA1/3H				
Question	**Answer**	**Mark**	**Mark scheme**	**Additional guidance**
18 (a)	$6x^3 + 35x^2 + 58x + 21$	M1	for a method to find the product of two linear expressions, 3 correct terms out of 4 terms e.g. $2x^2 + x + 6x + 3$ or $3x^2 + 7x + 9x + 21$ or $6x^2 + 14x + 3x + 7$	Note that, for example, $7x + 3$ is regarded as three terms in the expansion of $(2x + 1)(x + 3)$
		M1	for a complete method to obtain all terms, at least half of which are correct (ft their first product) e.g. $6x^3 + 32x^2 + 42x + 3x^2 + 16x + 21$	First product must be a 3 or 4 term quadratic but need not be simplified or may be simplified incorrectly
Q3		A1	cao	Accept $a = 6$, $b = 35$, $c = 58$, $d = 21$
(b)	$\frac{2}{5} < x < 1\frac{3}{5}$	M1	for first step of finding the square root of both sides eg $1 - x < \pm\frac{3}{5}$ **OR** for writing in the form $ax^2 + bx + c$ (< 0) eg $x^2 - 2x + \frac{16}{25}$ (< 0) or $25x^2 - 50x + 16$ (< 0)	Condone use of an "=" sign; accept one square root (eg $\frac{3}{5}$) only shown.
		M1	for showing critical values $\frac{2}{5}$ (= 0.4) and $1\frac{3}{5}$ (= 1.6) oe	Critical values can be stated, or shown in an expression (which may have incorrect inequality symbols)
		A1	for $\frac{2}{5} < x < 1\frac{3}{5}$ oe	Could be written as two separate expressions eg $x > \frac{2}{5}$ and $x < 1\frac{3}{5}$ oe

Paper: 1MA1/2H				
Question	**Answer**	**Mark**	**Mark scheme**	**Additional guidance**
Q4 19	$9 < m < 11$ $-11 < m < -9$	M1	for a correct method to begin rearranging to solve for m^2 eg $88 < m^2 + 7$ or $m^2 + 7 < 128$ or $81 < m^2 < 121$	It is insufficient to just multiply all three elements by 4; some rearrangement must occur such as showing as two separate inequalities or isolating m^2
		M1	for a complete method to $m^2 = 81$ or $m^2 = 121$ or better	Accept an inequality used in place of "=". m^2 must be isolated at this stage.
		M1	for a set of critical values: at least two out of 9, 11, −9, −11	Do not award if other values are also given eg 10
		M1	for selecting a correct inequality for one set of critical values eg $9 < m$ and $m < -9$ **or** $m < 11$ and $-11 < m$ **or** $9 < m$ and $m < 11$ or a set of inequalities with some error eg $9 \; ? \; m \; ? \; 11$ and $-11 \; ? \; m \; ? \; -9$ where ? is an incorrect inequality symbol like $9 < m \leq 11$ or $9 \geq m \geq 11$ or answer given as $\pm 9 < m < \pm 11$	Could be shown as $9 < m < 11$ or $-11 < m < -9$ or $-11 < m < 11$
		A1	$9 < m < 11$ and $-11 < m < -9$ given as boundaries of m	Accept with an "and" or an "or" or neither

Paper: 1MA1/2H				
Question	**Answer**	**Mark**	**Mark scheme**	**Additional guidance**
23 (a)	Shown	C1	for a method to find the area of half of the parallelogram or of the whole parallelogram, eg ½(2x – 1)(10 – x) sin150 or ½(2x – 1)(10 – x)× ½ oe or (2x – 1)(10–x) sin150 or (2x – 1)(10–x) × ½ oe	
		C1	for a correct expansion of the whole area eg ½ (20x – 10 – 2x^2 + x) or ½ (–2x^2 + 21x – 10) or –x^2 + 10.5x – 5	
Q5		C1	complete chain of reasoning with fully correct algebra dealing with the inequality eg x^2 – 10.5x + 5 < –15 or x^2 – 10.5x + 20 < 0 or 2x^2 – 21x + 10 < –30 which lead to 2x^2 – 21x + 40 < 0	
(b)	2.5 < x < 8	M1	for factorising, (2x – 5)(x – 8)	Could use the formula
		A1	for critical values, 2.5, 8	
		A1	for any statement that x is greater than 2.5 and x is less than 8	Need not be given as an inequality statement

Paper: 1MA1/2H				
Question	**Answer**	**Mark**	**Mark scheme**	**Additional guidance**
22 **Q6**	$x < -7, x > 8$	M1	for method to solve $x^2 - 49 > 0$ eg $(x + 7)(x - 7)$ **or** 7 **and** −7	accept use of = or incorrect inequality symbol for both the M marks
		A1	for $x < -7$ **and** $x > 7$	This may be implied by a suitable diagram
		M1	for method to solve $5x^2 - 31x - 72 > 0$ eg $(5x \pm 9)(x \pm 8)$ **or** $\frac{--31 \pm \sqrt{(-31)^2 - 4 \times 5 \times (-72)}}{2 \times 5}$ **or** 8 **and** −1.8 oe	
		A1	for $x < -1.8$ **and** $x > 8$	This may be implied by a suitable diagram
		A1	cao	

Paper: 1MA1/1H				
Question	**Working**	**Answer**	**Mark**	**Notes**
23 **Q7**		$x > 2$	P1 M1 M1 M1 A1	for process to derive algebraic expressions for area of both rectangle and triangle eg $(x - 1)(3x - 2)$ and $(2x \times x) \div 2$ (condone missing brackets) for method to rearrange inequality to $2x^2-5x+2> 0$ oe providing in the form $ax^2 + bx + c >0$ for a correct method to solve $2x^2-5x+2>0$ for establishing critical values 2 and $\frac{1}{2}$ $x > 2$