Paper: 1MA1/1H				
Question	**Answer**	**Mark**	**Mark scheme**	**Additional guidance**
10 (a)	$\frac{1}{5(x-1)}$	B1	for $\frac{1}{5(x-1)}$ or $\frac{1}{5x-5}$	
Q1 (b)	$2(5+y)(5-y)$	M1	for partial factorisation, eg $2(25-y^2)$ oe or $(10+2y)(5-y)$ oe or $(5+y)(10-2y)$ oe or $-2(y^2-25)$ oe	
		A1	for $2(5+y)(5-y)$ or $-2(5+y)(y-5)$	

Paper: 1MA1/1H				
Question	**Answer**	**Mark**	**Mark scheme**	**Additional guidance**
17 **Q2**	$\frac{3x+1}{2x}$	M1 A1 A1	for $(3x + 1)(x - 3)$ **or** $2x(x - 3)$ for $(3x + 1)(x - 3)$ **and** $2x(x - 3)$ $\frac{3x+1}{2x}$ oe	Accept $(2x + 0)$ for the first two marks but not for the final answer

Paper: 1MA1/3H				
Question	**Answer**	**Mark**	**Mark scheme**	**Additional guidance**
12 (a)	$\frac{3x^2}{(x-4)(x+2)}$	M1	for method to identify a common denominator, eg $(x-4)(x+2)$	
		M1	for method to combine the fractions, eg $\frac{2x(x+2)+x(x-4)}{(x-4)(x+2)}$	Accept $\frac{2x(x+2)}{(x-4)(x+2)}+\frac{x(x-4)}{(x-4)(x+2)}$
Q3		A1	for $\frac{3x^2}{(x-4)(x+2)}$ or $\frac{3x^2}{x^2-2x-8}$	
(b)	$8x^3-2x^2-51x-45$	M1	for method to find the product of two linear expressions, eg 3 correct terms out of 4 terms or 4 terms ignoring signs	Note that, for example, $-3x-9$ in expansion of $(x-3)(2x+3)$ is to be regarded as 3 correct terms.
		M1	for a complete method to obtain all terms, half of which are correct (ft their first product) eg $8x^3-12x^2-15x+10x^2-36x-45$	First product must be quadratic with at least 3 terms but need not be simplified or may be simplified incorrectly
		A1	cao.	

Paper: 1MA1/2H				
Question	**Working**	**Answer**	**Mark**	**Notes**
19 **Q4**		$a = 4$, $b = -42$	M1 M1 M1 A1	for at least two terms from $2(x-3)(x+3)$, $(x+2)(x+3)$, $(x-6)(x-3)$ (dep) for the correct expansion of at least two expressions, irrespective of signs, eg. $2x^2-18$, $x^2+2x+3x+6$, $x^2-6x-3x+18$ oe for $2x^2-18-x^2-5x-6-x^2+9x-18$ for $a = 4$, $b = -42$ (accept $4x-42$)

Paper: 1MA1/2H				
Question	**Answer**	**Mark**	**Mark scheme**	**Additional guidance**
13 **Q5**	$\frac{7x-13}{x-2}$	B1	for factorising eg $(x+5)(x-2)$	
		M1	for a method to divide $(x+5)$ by the algebraic fraction eg $(x+5) \times \frac{(x-1)}{x^2+3x-10}$	Condone incorrect factorising
		M1	for finding 2 fractions with a common denominator or a single fraction eg $\frac{6(x-2)}{x-2}+\frac{(x-1)}{x-2}$ **or** $\frac{6(x-2)+(x-1)}{x-2}$ **or** $\frac{6(x^2+3x-10)}{x^2+3x-10}+\frac{(x+5)(x-1)}{x^2+3x-10}$ **or** $\frac{6(x^2+3x-10)+(x+5)(x-1)}{x^2+3x-10}$	Condone incorrect factorising
		A1	$\frac{7x-13}{x-2}$	

Paper: 1MA1/1H				
Question	**Answer**	**Mark**	**Mark scheme**	**Additional guidance**
15 **Q6**	$\frac{26x+15}{10x}$	M1	for method to write at least one of the fractions with a suitable denominator, eg $\frac{4x+3}{2x}\times\frac{5}{5}\left(=\frac{20x+15}{10x}\right)$ **or** $\frac{3}{5}\times\frac{2x}{2x}\left(=\frac{6x}{10x}\right)$	
		M1	for method to combine the fractions, eg $\frac{5(4x+3)}{5\times 2x}+\frac{3\times 2x}{5\times 2x}$ **or** $\frac{5(4x+3)+3\times 2x}{5\times 2x}$ **or** $\frac{20x+15}{10x}+\frac{6x}{10x}$	
		A1	for correct algebra leading to $\frac{26x+15}{10x}$ oe in form $\frac{ax+b}{cx}$	

Paper: 1MA1/3H				
Question	**Answer**	**Mark**	**Mark scheme**	**Additional guidance**
22 **Q7**	$\frac{1}{x(x+4)}$	M1 M1 A1	inverting the fraction and multiplying eg $\frac{6x^3}{(9x^2-144)} \times \frac{3(x-4)}{2x^4}$ for factorising $9x^2 - 144$, eg $(3x - 12)(3x + 12)$ cao	

Paper: 1MA1/2H				
Question	**Answer**	**Mark**	**Mark scheme**	**Additional guidance**
12 (a) **Q8**	$\frac{4x-6}{3x-9}$	M1	factorises numerator of $4x^2 - 9$ eg $(2x - 3)(2x + 3)$ oe	$\frac{2x(2x-3)(2x+3)}{3x(2x+3)(x-3)}$
		M1	factorises denominator eg $x(x-3)$ or $3(2x + 3)$ or for $3x(2x^2 - 3x - 9)$	
		A1	cancels to give $\frac{4x-6}{3x-9}$	Accept $a = 4$, $b = -6$, $c = 3$, $d = -9$
(b)	$\frac{-x+8}{x(x+1)(x-2)}$	M1	method to use a common denominator eg $x(x+1)(x-2)$ by multiplying terms	Method must involve finding equivalents for all three separate terms; may be done in several stages.
		M1	deduce numerator eg $3x(x-2) + x(x+1) - 4(x+1)(x-2)$	
		A1	oe	Equivalents must be algebraically equivalent and must have involved full simplification.

Paper: 1MA1/1H				
Question	**Answer**	**Mark**	**Mark scheme**	**Additional guidance**
13 (a)	$\frac{17x+2}{3x(x+1)}$	M1	for a correct common denominator with at least one correct numerator eg. $\frac{5\times3x}{3x(x+1)}+\frac{2(x+1)}{3x(x+1)}$	
Q9		A1	for a single simplified fraction, eg. $\frac{17x+2}{3x(x+1)}$ or equivalent eg. $\frac{17x+2}{3x^2+3x}$	$\frac{15x+2(x+1)}{3x(x+1)}$ gets M1 only
(b)	$(x+y)(x+y+3)$	B1	cao	

Paper: 1MA1/3H				
Question	**Answer**	**Mark**	**Mark scheme**	**Additional guidance**
22 **Q10**	$7x$	M1 M1 M1 A1	multiplication by reciprocal, eg $\frac{7(x-2)}{(x-2)(x+6)} \times \frac{x(x+6)(x-6)}{x-6}$ for factorising the numerator or denominator of the 1st fraction, eg $\frac{7(x-2)}{(x-2)(x+6)}$ **or** $\frac{7(x-2)}{x^2+4x-12}$ **or** $\frac{7x-14}{(x-2)(x+6)}$ for factorising the denominator of the second fraction, eg $\frac{x-6}{x(x+6)(x-6)}$ $(=\frac{1}{x(x+6)})$ completing the algebra to reach $7x$	Independent mark, may be awarded at any point

Paper: 1MA1/3H				
Question	**Answer**	**Mark**	**Mark scheme**	**Additional guidance**
22 **Q11**	$a = 4$ $b = 110$	M1	for writing at least one of the 3 terms with a denominator of $(x^2 - 25)$ or $(x - 5)(x + 5)$ eg. $\frac{(2x+3)(x+5)}{x^2-25}$ oe or $\frac{(x-4)(x-5)}{x^2-25}$ oe or $\frac{3(x^2-25)}{x^2-25}$ oe	Students may work with a denominator of $(x - 5)(x + 5)$ for the award of the first 2 marks.
		M1	for $\frac{(2x+3)(x+5)}{x^2-25} + \frac{(x-4)(x-5)}{x^2-25} - \frac{3(x^2-25)}{x^2-25}$ oe or for $\frac{3x^2+4x+35}{x^2-25}$ (– 3) or for $\frac{[3x^2+4x+35]}{x^2-25} - \frac{3(x^2-25)}{x^2-25}$ oe	
		A1	for $a = 4$ and $b = 110$	

Paper: 1MA1/3H				
Question	**Answer**	**Mark**	**Mark scheme**	**Additional guidance**
19 **Q12**	$\frac{-11x+2}{x^2-4}$	M1	for writing at least one of the 3 terms with a denominator of $(x^2 - 4)$ or $(x - 2)(x + 2)$ eg. $\frac{3x(x-2)}{x^2-4}$ oe or $\frac{(x+2)(2x+1)}{x^2-4}$ oe or $\frac{x^2-4}{x^2-4}$	Students may work with a denominator of $(x - 2)(x + 2)$ for the first 3 marks
		M1	for $\frac{3x(x-2)}{x^2-4} - \frac{(x+2)(2x+1)}{x^2-4} - \frac{x^2-4}{x^2-4}$ oe or for $\frac{x^2-11x-2}{x^2-4}$ (– 1) or for $\frac{[x^2-11x-2]}{x^2-4} - \frac{x^2-4}{x^2-4}$	$[x^2 - 11x - 2]$ denotes their expansion of $3x(x - 2) - (x + 2)(2x + 1)$
		M1	for a numerator of $3x^2 - 6x - 2x^2 - 5x - 2 - x^2 + 4$	May be simplified
		A1	for $\frac{-11x+2}{x^2-4}$	Accept $a = -11$ and $b = 2$