Name: _____

IGCSE (9-1) Maths
topics new to Foundation tier:
Simultaneous equations

Date:

Time: 30 minutes

Total marks available: 25

Total marks achieved: _____

Q1. Solve the simultaneous equations

$8x - 4y = 7$
$12x - 8y = 6$

Show clear algebraic working.

x = ...

y = ...

(Total 3 marks)

Q2. Solve the simultaneous equations

$5y - 4x = 8$
$y + x = 7$

Show clear algebraic working.

x = ...

y = ...

(Total 3 marks)

Q3. Solve the simultaneous equations

$2x - y = 13$
$x - 2y = 11$

x = ...

y = ...

(Total 3 marks)

Q4. Solve the simultaneous equations

$4x + y = 25$
$x - 3y = 16$

x =.....

y =.....

(Total 3 marks)

Q5. Solve the simultaneous equations

$3x + 10y = 7$
$x - 4y = 6$

$x =$ . . . . . .

$y =$ . . . . . .

(Total 3 marks)

Q6. Solve the simultaneous equations

$3x + 5y = 4$
$2x - y = 7$

(Total 3 marks)

Q7. Solve the simultaneous equations

$4x - 5y = 33$
$3x + y = 1$

$x =$ .....

$y =$ .....

(Total 3 marks)

Q8. A cinema sells adult tickets and child tickets.

The total cost of 3 adult tickets and 1 child ticket is £30
The total cost of 1 adult ticket and 3 child tickets is £22

Work out the cost of an adult ticket and the cost of a child ticket.

adult ticket £.....

child ticket £.....

(Total 4 marks)

Mark Scheme

Q1.

Question	Working	Answer	Mark	Notes
	$16x - 8y = 14$ $12x - 8y = 6$ $4x = 8$		3	M1 for appropriate multiplication to get coefficients of x or y the same (condone one arithmetic error) with the correct operation to eliminate one variable **or** for correct rearrangement of one equation followed by substitution in the other (condone one arithmetic error).
				M1(dep) to find value of second variable ft from value of their first variable
		$x = 2$ $y = 2.25$oe		A1 Award 3 marks for correct values if at least first M1 scored
				Total 3 marks

Q2.

Q	Working	Answer	Mark	Notes
	Eg $9y = 36$ or $9x = 27$ or $5(7 - x) - 4x = 8$ or $5y - 4(7 - y) = 8$		3	M1 For a correct method to find an equation in x or y. Condone 1 arithmetic error.
		$x = 3, y = 4$		A2 Dep on M1 A1 for each value
				Total 3 marks

Q3.

PAPER: 1MA0/1H				
Question	**Working**	**Answer**	**Mark**	**Notes**
	$4x - 2y = 26$ $x - 2y = 11$ $3x = 15$ $2x - y = 13$ $2x - 4y = 22$ $3y = -9$	$x = 5$ $y = -3$	3	M1 for correct process to eliminate one variable (condone one arithmetic error) M1 (dep) for substituting found value in one of the equations or appropriate method after starting again (condone one arithmetic error) A1 for $x = 5$ and $y = -3$

Q4.

PAPER: 1MA0_1H					
Question		Working	Answer	Mark	Notes
			$x = 7$ $y = -3$	3	M1 for correct process to eliminate one variable (condone one arithmetic error) M1 (dep) for substituting found value in one of the equations or appropriate method after starting again (condone one arithmetic error) A1 for $x = 7$ and $y = -3$

Q5.

		Working	Answer	Mark	Notes
		$3x + 10y = 7$ $3x - 12y = 18$ $22y = -11$ $y = -0.5$ $3x + 10 \times -0.5 = 7$ $x = 4$	$x = 4$, $y = -0.5$	3	M1 for a full method to eliminate x or y, allow one error in calculation M1 (dep) for substitution of one variable into one of the equations, or by appropriate method after starting again A1 for 4 and –0.5

Q6. [part (a) only]

Question	Working	Answer	Mark	AO	Notes
(a)	$3x + 5y = 4$ $10x - 5y = 35$ $13x = 39$	$x = 3, y = -1$	M M A	1.3b 1.3b 1.3b	M1 for correct method to eliminate one variable M1 for correct method to find second variable A1 for $x = 3$ and $y = -1$
(b)	$x + 5 > 8$ $x > 3$ $2x - 3 < 7$ $2x < 10$ $x < 5$	$x = 4$	B B B	1.3b 1.3b 1.3b	B1 for $x > 3$ or for $x < 5$ B1 for $x > 3$ **and** for $x < 5$ B1 for $x = 4$ from $x > 3$ and $x < 5$

Q7.

PAPER: 5MB3H_01				
Question	**Working**	**Answer**	**Mark**	**Notes**
	$4x - 5y = 33$ $15x + 5y = 5$ $19x = 38$ $x = 2, \quad 3\times2 + y = 1$ $y = -5$ $12x - 15y = 99$ $12x + 4y = 4$ $-19y = 95$ $y = -5, \quad 3x - 5 = 1$ $x = 2$ OR $4x - 5(1 - 3x) = 33$ $x = 2, \quad 3\times2 + y = 1$ $y = -5$	$x = 2, y = -5$	3	M1 for a fully correct process to eliminate one variable (condone one arithmetical error) M1 (dep on M1) for a correct substitution of their value (of x or y) into one of the equations, or for starting again with a fully correct process to eliminate the second variable A1 for $x = 2$ and $y = -5$ OR M1 for a correct rearrangement of one of the equations to make either x or y the subject and a correct method of substitution into the other equation. (condone one arithmetical error) M1 (dep on M1) for the substitution of their value (of x or y) into one of the equations. A1 for $x = 2$ and $y = -5$ [Note: No marks for trial and improvement methods unless a fully correct solution is found]

Q8.

PAPER: 1MA0_2H					
Question		**Working**	**Answer**	**Mark**	**Notes**
		$3x + y = 30$ $x + 3y = 22$	8.50 4.50	4	M1 for forming two algebraic equations M1 for a correct process to eliminate one variable (condone one arithmetic error) M1 (dep) for substituting found value in one of the equations or appropriate method after starting again (condone one arithmetic error) A1 for 8.5(0) and 4.5(0)