

# Mark Scheme Summer 2009

Functional Skills

Mathematics (FM101 and FM201)

Pilot

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FM101/01					
No	Process	Answer	Mark	Notes	
1	(a)	Read from graph	Answer given on answer line or shown on graph	1	Answer in range 10.9-11.1
	(b)	Read from graph	Answer given on answer line or shown on graph	1	Answer in range 3.6-3.7
2	(a)	Understanding and use of table	Answer given: both names required	1	Ruby & Lily: full names; accept errors in spelling.
	(b)	Understanding and use of table	Answer given	1	Emily: full name only; accept errors in spelling.
3	(a)	Calculates using scaling	Attempts to double or	1 or	eg $\times 2$ or "double", 3+3 or 2:1, 1:2, 6:3, 3:6
		Answer given as 6		2	6 given
	(b)	Explanation and interpretation relating to probability	Appropriate ans: eg "NO because, there are more girls born in the UK than boys, OR YES because there should be an equal number of boys & girls born	1	eg Yes/No could be implied from the answer as long as it is clear; NO and "more boys born"
	(c)	Explanation relating to reliability of probability	Gives an example of what could be done	1	eg collect over a larger time period (a week or more), ask more parents, contacts other hospitals, could look on the internet.

FM101/01				
No	Process	Answer	Mark	Notes
4	Presents table or chart	One of: (i) all 3 items (ii) at least 6 input opportunities; (iii) clear table/chart with labelled axes	1 or	Accept for one or two babies. If a table is accompanied by an incorrect chart, mark the table and ignore the chart.  For a clear table accept a framework of a table; see other criteria for the award of the marks for units, labelling 6 columns, etc.  The 6 opportunities could be labelled with numbers, dates or in another way.
		Two of: (i) all 3 items some of which have units; (ii) at least 6 clearly labelled input opportunities; (iii) clear table/chart with labelled axes	2 or	
		All of: (i) All 3 items with units; (ii) at least 6 clearly labelled input opportunities.; (iii) clear table/chart with labelled axes	3	

FM101/01				
No	Process	Answer	Mark	Notes
5	<p>Uses information relating to body weight</p> <p>NB: award the marks in M1 even if the calculations have been doubled.</p> <p>An alternative to showing <math>\div 200</math> could be evidence of adding 200s for each tin.</p> <p style="text-align: right;"><b>M1</b></p>	One of: $27 \times 2.6$ , $27 \times 7$ , $27 \div 200$ or two operations eg $2.6 \times 7$	1 or	eg $27 \times 2.6$ , $27 \times 7$ , etc eg 70.2, 189, 0.135 eg 18.2, 0.013, 0.035
		Two of: $\times 2.6$ , $\times 7$ , $\div 200$ with 27, or three operations $2.6 \times 7 \div 200$	2 or	eg 491.4, $70.2 \times 7$ , $18.2 \times 27$ , etc., 0.945, 0.351 eg 0.091
		$27 \times 2.6 \times 7 \div 200$	3	eg 2.457
	<p>Considers number of tins and works out the cost; need to see the evidence of this being done</p> <p style="text-align: right;"><b>M2</b></p>	States 2.(..) or rounds up/uses accurate value as average, or sight of 3, or exactly three 200s shown	1 or	eg 2.(457) OR sight of 3 tins
		Rounds correctly to 3 tins. NB: not from working which is clearly incorrect.	2	Number of tins given as 3
	<p>Works out the cost</p> <p style="text-align: right;"><b>M3</b></p>	States correct cost	1	£23.91

FM101/01				
No	Process	Answer	Mark	Notes
6	(a) Calculates total claim	One of $30 \times 27p$ or $\pounds 4.80 + \pounds 3.40$	1 or	eg digits 81 (possibly with zeros) or 820
		Both of $30 \times 27p$ , $\pounds 4.80 + \pounds 3.40$ with column addition attempted	2 or	eg digits 1388(0) or three totals added
		Total claim stated in correct money notation	3	$\pounds 138.80$ , $\pounds 138.80p$
	<b>M1</b>			
	(b) Adjusts claim	Considers $30 \times (29 - 27)$ OR $30 \times 29$ ( $= \pounds 8.70$ ) then some recalculation	1 or	Needs complete method shown.
		States $\pounds 0.60$ or 60p or $\pounds 0.60p$	2	Needs correct monetary units, otherwise 1 mark only.
	<b>M2</b>			
7	Attempts to find how many days are needed	$62 \div 10$ OR repetitive addition or 10	1 or	any process to identify how many lots of 10 in 62 or sight/conclusion that it is 6 days (only), eg sight of 6
		Calculation to 6.2 OR 10s eg $10 + \dots + 10 + 2$	2 or	some consideration of the fact it is over 60 (needing some time over 6 days but not clearly stated) eg sight of 6.2, or 6r2
	Considers rounding	Answer	3	7 days or 6 days & 1 morning, or $6\frac{1}{2}$ days etc.

FM101/01				
No	Process	Answer	Mark	Notes
8	Ensures same time period is used, and makes a comparison	States salary in same time period.	1 or	weeks, months or year, or attempts comparison; accept 48 weeks in a year, and references to holiday pay.  Need £ sign
		States salary in same time period and states Beta (could be implied from a comparison using figures) or Sales Consultant	2	
	Attempts calculation to equalise the time period of the amounts, carrying out some calculation and/or comparison	Partial calculation to convert to diff time period OR shows $30 \times 15 (=450)$	1 or	Per year: A 23000 B 21600/23400
		Partial attempt calculation to convert to diff time period AND shows $30 \times 15 (=450)$	2 or	Per month: A 1916.. B 1800 Per wk: A 479/442 B 450
		Sight of 1916 & 1800 per month OR sight of 479/442 & 450 per week OR 21600/23400 per year	3	Accept figures approximating to those above, as long as the intention to work to a similar time period is clear, but use of incorrect time units (eg 54 weeks in a year etc) treat as a partial attempt to convert.
		M1		
	M2			



FM101/01				
No	Process	Answer	Mark	Notes
9	Uses hotel information to make comparisons	Uses one from: 14 days or 2 adults/2children or 2-15 Aug, any hotel	1 or	eg by evidenced in use of figures from tables (839×2)+449+549 (805×2)+319+375 (819×2)+249+449  NB Any one answer correct award 3 marks  eg 2676, 2304, 2336
		Uses two from: 14 days, or 2 adults/2children, or 2-15 Aug, any hotel	2 or	
		Uses all three from: 14 days or 2 adults/2children, or 2-15 Aug, any hotel.	3 or	
		Obtains all three correct totals.	4	
	M1			
	Finds lowest total price		Makes comparisons, with their totals given, deducing cheapest hotel from their figures.	1 or
Makes comparisons, deduce cheapest with correct total given, comparisons clear.			2	
M2				

FM101/01				
No	Process	Answer	Mark	Notes
10	<p>This part of the marking is for the overall approach and choice of method used in solving the problem.</p> <p>Uses a structured process of eliminating the most expensive trips, to reduce the total of the trips for the family to below €800, whilst maximising the number of trips.</p>	<p>Demonstrates some understanding of the problem: eg one of: (i) total or reduces by taking off from €800, OR takes smallest and leave largest; (ii) accounts for both 2 adults and 2 children when totalling; (iii) makes comparisons/find difference with €800</p>	1 or	<p>eg Caves of wonder <math>90+70=80\times 2= \text{€}160</math> Historical Palma <math>80+70=75\times 2= \text{€}150</math> Palma shopping <math>88+70=79\times 2= \text{€}158</math></p>
		<p>Demonstrates a method that is not entirely clear, but appears to be able to get most of the way through the problem. eg two of: (i) total or reduces by taking off from €800, OR takes smallest and leave largest; (ii) accounts for both 2 adults and 2 children when totalling; (iii) makes comparisons finds difference with €800</p>	2 or	<p>Flamenco <math>100+80=90\times 2= \text{€}180</math> Jeep safari <math>90+70=80\times 2= \text{€}160</math> River cruise <math>100+70=85\times 2= \text{€}170</math> NB: in this section the arithmetic need not be correct.</p>
		<p>Shows a complete method that can be clearly understood with no ambiguity: eg all of: (i) total or reduces by taking off from €800, OR takes smallest and leave largest; (ii) accounts for both 2 adults and 2 children when totalling; (iii) makes comparisons/finds difference with the target of €800</p>	3	
	M1			

FM101/01				
No	Process	Answer	Mark	Notes
	<p>This part of the marking awards marks for the calculations performed.</p> <p>Overall objective: Totals amounts appropriately to match criteria and shows a difference from €800.</p>	<p>Performs some calculations which demonstrate understanding of the table and costing. eg calculates the cost of at least four trips accurately (condone missing Flamenco) or a correct difference from €800</p>	1 or	<p>160, 150, 158, (180)*, 160, 170 *if included must be correct.</p> <p>All but Flamenco = €798</p>
		<p>Calculations not only show understanding of the table, but also some comparison with €800 (could be implied).</p> <p>eg calculates the total cost of at least four trips accurately (condone missing Flamenco) and a correct difference from €800 OR correct total and clearly indicates which trips without Flamenco (107)</p>	2 or	<p>Subtracts total correctly from €800 Total of all = €978</p>
M2		<p>Completes all calculations with clarity, showing working and solution:</p> <p>States €798 or a difference of €2 and clearly indicates all trips without Flamenco (107)</p>	3	eg 101,104,105,110,112

FM101/01					
No	Process	Answer	Mark	Notes	
11	(a)	Calculates the times from Sa Pobla to Palma	Find the difference in times	1 or	eg sight of 0923-1020 or the digits 57
			Gives the correct time & appropriate units	2	57 minutes
	(b)	Considers the criteria and apportions times to the trip in accordance with the timetable.	Criteria for marks: (i) Sa Pobla train a correct time (ii) villa leaving time at least 30 mins before SaPobla time (iii) Inca arriving time consistent with SaPobla leaving time (iv) Inca leaving time 2h later than arrival time (v) Palma time consistent with a correct time of leaving Inca	1 or	Check working and results in the table. Accept times written in 12 and 24 hour clock time. Marks may be awarded independently: 1 mark for 2 criteria, 2 marks for 3 criteria, 3 marks for 4 criteria, 4 marks for all criteria.  eg Sa Pobla            9 23 Arrives Inca       9 41 Leaves Inca       11 41 Palma                12 20  Marks can only be awarded for times.
				2 or	
3 or					
4					

Total for paper: 48 marks