Mark Scheme (Results)

March 2010

Functional Skills Mathematics – FM101
Paper: FM101/01

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No	Process	Evidence	Mark	Notes
Q1(a)	Decide and Justify	Written answer	1 or	A statement that partially addresses the question with some reference to the table.
			2	A statement that addresses the question with a clear conclusion and a table reference.
Q1(b)			1 or	A statement that is correct but only partially addresses the question
			2	A complete statement that makes a comparison using figures from the table, OR a link made between **percentage** increasing and **age** increasing
Q2(a)	Sets out totalling work		1 or	Adds numbers from the table.
		M1	2	Adds numbers and includes interpretation of multiple tallies eg subtotals.
	Totals		1 or	Shows the correct result of some addition eg subtotals or 1843
		M2	2	Correct answer: 2415
Q2(b)	Uses criteria		1 or	States / demonstrates an intended plan / process of action relating to items in the table; could be implied by use of figures from the table.
		M1	2	Includes figures from Breakfast, Lunch, Dinner and includes some drinks (must be shown or listed).
	Communicates	Considers changing items	1 or	Does some totalling or deductions using figures from the table.
	Solution	Calorie total 1850 – 1900 M2	2	Calculations demonstrate how final figures can result in a final total between 1850 and 1900; assume figures quoted are those arrived at in part (a); could be done by finding differences from target total, or adding to (eg if using 1843).

No	Process	Evidence	Mark	Notes
Q3	Use of data to attempt convert to time (hours).	Method demonstrating use of figures given in the question.	1 or	**One** of [run] 24 km × 5 min (=120 min or 2 h) **OR** [cycle] 75 km × 2 min (=150 min or 2½ h) **OR** [swim] 8km × 1000 (=8000m) ÷ 25 (=320 lengths) × 30 s (=9600s or 160 min or 2 h 40 min) or equivalent methods.
			2 or	**Two** of [run] 24 km × 5 min (=120 min or 2 h) **OR** [cycle] 75 km × 2 min (=150 min or 2½ h) **OR** [swim] 8km × 1000 (=8000m) ÷ 25 (=320 lengths) × 30 s (=9600s or 160 min or 2 h 40 min) or equivalent methods.
		M1	3	**All** of [run] 24 km × 5 min (=120 min or 2 h) **OR** [cycle] 75 km × 2 min (=150 min or 2½ h) **OR** [swim] 8km × 1000 (=8000m) ÷ 25 (=320 lengths) × 30 s (=9600s or 160 min or 2 h 40 min) or equivalent methods.
	Calorie calculations	Method demonstrating conversion to calories	1 or	**One** of [run] ×500 **OR** [cycle] ×300 **OR** [swim] ×600
		M2	2	**Two** of [run] ×500 **OR** [cycle] ×300 **OR** [swim] ×600
	Calories used	Calculates calories Allow 2.6 or 2.7 h M3	1 or	**One** of [run] 1000 calories **OR** [cycle] 750 calories **OR** [swim] 1500-1620 cal.
			2	Answer in the range 3200 – 3400

No	Process	Evidence	Mark	Notes
Q4	Best fit width	Uses isometric grid	1 or	Evidence shows extraction of at least one correct dimensions of box: 3, 7 or 10 (could be drawn on the diagram).
		M1	2	Use of at least one dimension of box in a valid calculation.
		Overall design	1 or	An overall design of at least 3 shelves (as shown) showing clearly a number of boxes on each shelf or takes the size of each box into consideration of the design.
		M2	2	Design shows where all boxes are placed, no more than 43 on each shelf.
		Dimensions given	1 or	Shows at least one dimension on the design (other than width=130cm), or demonstrates a calculation leading to a dimension of the shelving unit (using their figures from box)
		M3	2	Shows clearly the correct height and width of the shelving unit sufficient to accommodate the 100 boxes.

No	Process	Evidence	Mark	Notes
Q5(a)	Finds savings		1 or	**One** of 3×1.24 (=3.72) **OR** 1.75+1.18 (=2.93) **OR** 1.75+1.24 (=2.99)
			2 or	**Both** 3×1.24 (=3.72) **AND** 1.75+1.18 (=2.93) **OR** one of these seen in calculating a difference.
		3.72 – 2.93	3	£0.79 **oe** correct money notation is required
Q5(b)			1 or	Uses 1.75 in working towards £10, either 10÷1.75 (=5.7…) **or** adds up at least five lots of 1.75 (=8.75) **or** subtracts from 10 (=1.25) or equivalent method.
			2 or	Uses 1.75 in working towards £10, either 10÷1.75 (=5.7…) **or** adds up at least five lots of 1.75 (=8.75) **or** subtracts from 10 (=1.25) **AND** realises they can fit in at least 1 more box (eg adds/subtracts in 1.24 or 1.18) **OR** shows there are 10 boxes so far (eg shows 10 as an answer).
			3	States 11 boxes.

No	Process	Evidence	Mark	Notes
Q6	'Tinned'	Cost per day (oe)	1 or	2 cans per day: $1.80 \div 10 \times 2$ oe: or 0.18×2 or $3.60 \div 10$
	Calculations	36p (oe) M1	2	(£) 0.36 or 36(p)
	'Complete'	Credit other valid methods	1 or	Identifies 80g as the required amount AND attempts at least one proportional calculation using a pack weight: "price" ÷ "weight" ×80
	Calculations	 M2	2	Calculates a pack weight: 0.3776 [500g]; 0.364 [1 kg]; 0.32 [2 kg]; 0.3 [4 kg]
	Comparisons		1 or	Arrives at two clearly stated answers which may be compared (may be figures restated from the question).
	Made	 M3	2	Uses two clearly stated prices to make a correct deduction as to the cheapest (using their answers); must be related to the same units of time.

No	Process	Evidence	Mark	Notes
Q7	Finds perimeter	Interprets diagram	1 or	Identifies either 4.31m & 4.27m, or 14'2 & 14
		Attempts to find perimeter M1	2	Perimeter calculation: 4.31×2 + 4.27×2, 14'2×2 + 14×2 oe or sight of 17.16 or 56'4
	Interprets and uses Table		1 or	Identifies correct row (2.60-2.75) and column (arrow on or between relevant figures associated with their calculated perimeter) eg marks on table.
			2 or	Identifies a number of rolls on row 2.60-2.75 with their calculated perimeter (given as a range or two values either side of their perimeter value), **or** states 8 rolls.
		M2	3	Identifies the correct (rounded up) number of rolls for their calculated perimeter, **or** states 9 rolls.
Q8	Number of packs.	Finds best combination of packs and individual tiles.	1 or	100 ÷ 44 (=2.27..) or addition of 44s and use of either 2 or 3 boxes.
			2 or	2 packs chosen and evidence that individual tiles need to be purchased.
		M1	3	A calculation for any one tile involving "cost per pack" × 2 + "cost each" × 12 eg 14.88×2+12×0.34 (=29.76+4.08), **or** 13.52×2+12×0.32 (=27.04+3.84), **or** 13.08×2+12×0.31 (=26.16+3.72)
	Calculates cost Of tile colours Tile choice		1 or	At least one total stated for one of the tiles.
			2 or	At least one answer of £33.84, £30.88 or £29.88
		M2	3	"Raspberry" stated with £29.88 calculated (alone).

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