

Mark Scheme (Results)

Summer 2010

Functional Mathematics

Functional Skills Mathematics – FM101
Paper: FM101/01

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	Process	Evidence	Mark	Notes
Q1	Matching dimensions	A simple deduction	1 or	States Crystal or C; states Fly Tim or Diamond because one of the dimensions fit.
		Crystal and complete explanation.	2	States Crystal or C with an explanation that the three dimensions fit (or two dimensions don't fit the others); this could be implied by words, or figures given for comparison. If comparing volumes need to see digits "63".
Q2	Calculating time intervals	attempt to reconcile units of time, or differencing	1 or	$3 \times 60 (=180)$ or $x-(20+25)$ or $x-3/4$ or 45 min
		attempt to reconcile units of time, and differencing	2 or	"180"-20-25 or 135, $3 - \frac{3}{4}$ or $2\frac{1}{4}$ etc without units
		135 mins, 2h 15m, $2\frac{1}{4}h$	3	Correct time interval units with units stated.

	Process	Evidence	Mark	Notes
Q3	Calculate and compare. (see end notes)	Excess Luggage	1 or	Makes a single comparison regarding luggage (evidenced by any #1)
			2	<i>Attempts</i> a correct calculation regarding excess luggage (evidenced by any #2 or £50 or £18)
		M1		
		Cost of flying (monetary values).	1 or	Any correct calculation involving excess luggage (see any #2 or £50 or £18)
			2 or	Any two of 10,50,18, or any two of 110, 126, 144, 150 or 260 or 270
			3	All 110, 126, 144, 150 are stated, or 260 and 270.
		M2		
		Comparison	1 or	Makes a single valid comparison or deduction based on their figures; could be comparing prices individually.
			2	Deduces which plane is cheapest for both Carla and Clementi travelling together, based on, and supported by their figures.
		M3		

	Process	Evidence	Mark	Notes
Q4	Interprets Programme	Identifies two films that are on Saturday after 1800 M1	1 or	At least one of Bruno, Harry Potter or Transformers with no other films, could be indicated on the table.
			2	At least two of Bruno, Harry Potter or Transformers with no other films, could be indicated on the table.
	Uses time.	Calculates time durations M2	1 or	Calculates any time period correctly, either using film duration, or duration using/from 6pm (1800) or attempts to calculate the time period for Harry Potter 18.15 (+2h50 to 2105)
			2	States Bruno 2110
	Solution	Solution identified M3	1	Harry Potter then Bruno.

	Process	Evidence	Mark	Notes
Q5	Film costs	Calculations for film costs or deductions. <i>Amend for other time periods.</i> M1	1 or	7.5×2 (=15) or 7.5×4 (=30) or £10-£7.50 (£2.50)
			2	7.5×2×4 (=60) for the month or 7.5×8×12 (=720) for the year OR 660-500 (=160) or “one free film” AND 10-£7.50 (£2.50)
	Points received	Calculation to find out the points received <i>Amend for other time periods.</i> M2	1 or	Amounts of 70 (eg 70×2, 70×4, 70×8) (=140, 280, 560) (eg 1680, 3360, 6720 for the year)
			2 or	Add 100 to above (eg 240, 380, 660 pm, 2880, 4560, 7920 pa)
			3	660 per month, 7920 per annum
	Deduce whether it is worth it to Simon.	Compare points gained with monetary equivalent; make deduction. <i>Amend for other time periods.</i> M3	1 or	Identifies 500 as a £7.50 saving (eg -£2.50) [eg -£112.50 per year] or states -£2.50 [month], -£112.50 [year].
			2	Concludes not worth joining, with numerical evidence (not necessarily accurate but complete) eg “No, £2.50 worse off”.

	Process	Evidence	Mark	Notes
Q6	Screen capacity	Scheduling. <i>Do not check time duration calculations; tested in Q4.</i> M1	1 or	Film A in screens 1 & 2 or shown twice in one screen OR Film B in screens 1 & 2 or shown twice in one screen OR Film C shown in screen 1or 2 OR Film D shown in screen 1or 2 OR no separate screens, but all four films listed.
			2 or	Two of: Film A in screens 1 & 2 or shown twice in one screen; Film B in screens 1 & 2 or shown twice in one screen; Film C shown in screen 1or 2; Film D shown in screen 1or 2.
			3	Film A in screens 1 & 2 or shown twice in screen 1 AND Film B in screens 1 & 2 or shown twice in one screen AND Film C shown in screen 1 AND Film D shown in screen 1 or 2
	Screen capacity	Overall criteria M2	1 or	All films start no earlier than 1pm, and finish no later than 10pm.
			2	All films start no earlier than 1pm, and finish no later than 10pm, AND shows at least one 20 min break.
	Display timetable	Screen 1 & Screen 2 with films. M3	1 or	A clear display (table or listing) with Screen 1 & Screen 2, at least one film shown for each (no times needed at this stage)
			2	A clear display (table or listing) with Screen 1 & Screen 2, at least one film shown for each, with some start/finish times.

	Process	Evidence	Mark	Notes
Q7	Widened Bay: 7 bays	Begins calculations M1	1 or	Attempts to find the difference 3600-2400 (or 1200 seen) OR Multiplies a dimension by 7 (eg 16800 or 25200 seen) OR draws a diagram showing differences in bay widths
			2	Calculates a difference and multiplies by 7: $7 \times (3600 - 2400)$ or 8400 seen OR deduces half a bay extra for each disabled bay. draws a scaled accurate diagram showing differences in bay widths
	Effect on Car park bays	Works out bays lost M2	1 or	Division by 2400 or $7 \times \frac{1}{2}$ bays or 3.5 seen
			2	Conclusion: 4 bays are lost.
Q8	Wage	Extracts Info from table M1	1	Digits 483 and 580 seen or implied from correct working or answer.
	Weekly total Answer	Calculates wages <i>NB: award if an alternative time than 30 h is used consistently eg 120 h per week, or p.a. etc.</i> M2	1 or	$30 \times 5.8(0)$ or 30×4.83 (or $\times 6$) NB ignore other calculations or sight of 34.8 or 28.98 or 174 or 144.9 OR $5.8(0) - 4.83$ or 0.97
			2 or	$30 \times 5.8(0) - 30 \times 4.83$ or “34.80”-“28.98” or 5.82 (per day) seen OR $30 \times (5.8(0) - 4.83)$ or 30×0.97 or 2910
			3	£29.10 but 2 marks only for £29.1 or 29.10

	Process	Evidence	Mark	Notes
Q9	Extract Info Calculates	Considers how StAs can be reassigned to St Bs & StCs. M1	1 or	$280 - 170 (=110) : 430 - 180 (=250)$ $110+250 (= 360)$ $280 - 240 (=40) : 430 - 380 (=50)$ $40+50 (= 90)$ $280 - 150 (130) : 430 - 380 (=50)$ $130+50 (= 180)$ any one calc is seen or implied. OR shows how the capacity from StAs can be split between StBs and StCs for any time.
			2	Shows overcapacity in both StBs and StCs. at noon.
	Communicates	<i>Number work should not contradict conclusion.</i> M2	1 or	8am enough space oe or 4pm enough space oe
			2	Noon not enough space oe
Q10	Creates a display (table or graph) that can be used to compare figures and deduce cheapest car parking.	Comparison M1	1 or	For at least one time interval some prices (or the cheapest) are displayed for comparison.
			2	For most time intervals (within 1-7 hours) some prices (or the cheapest) are displayed for easy comparison.
		Table design M2	1 or	Table or graph displayed with at least 2 car parks and some hourly times displayed as col/row/axis labels.
			2 or	Table or graph displayed with all 3 car parks, some hourly times (from 1-7 hours) and some prices.
			3	Table or graph displayed with all 3 car parks, all hourly times (from 1-7 hours) and all prices (or all cheapest prices) ie data complete.

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