

Mark Scheme (Results) February 2011

Functional Skills

Functional Skills Mathematics Level 2 (FSM02)

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General Marking Guidance

- All candidates must receive the same treatment. Examiners must mark the first candidate in exactly the same way as they mark the last.
- Mark schemes should be applied positively. Candidates must be rewarded for what they have shown they can do rather than penalised for omissions.
- Examiners should mark according to the mark scheme not according to their perception of where the grade boundaries may lie.
- There is no ceiling on achievement. All marks on the mark scheme should be used appropriately.
- All the marks on the mark scheme are designed to be awarded. Examiners should always award full marks if deserved, i.e. if the answer matches the mark scheme. Examiners should also be prepared to award zero marks if the candidate's response is not worthy of credit according to the mark scheme.
- Where some judgement is required, mark schemes will provide the principles by which marks will be awarded and exemplification may be limited.
- When examiners are in doubt regarding the application of the mark scheme to a candidate's response, the team leader must be consulted.
- Crossed out work should be marked UNLESS the candidate has replaced it with an alternative response.

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Question	Process	Mark	Mark Grid	Evidence
SECTION A MOBILE HAIRDRESSER				
Q1(a)	Calculates hours per week	1	A	22.5 (hours) o.e
Q1 (b)	Shows process to calculate a)discount OR b) cost for senior citizen OR c) discount as % of full cost OR d)amount charged as % of full price OR e) reverse checks	1 or	B	0.15×37.50(=5.625) OR 0.85×37.50(=31.875) OR $\frac{7.50}{37.50} \times 100(= 20)$ OR $\frac{30}{37.50} \times 100(= 80)$ OR $\frac{30}{0.85} (= 35.29...)$ OR 10%=.... and 5%=....., (at least one correct) and clear intention to add
	Correct answer to process used	2	BC	[5.6(0),5.7(0)] OR [31.8(0), 32.(00)] OR 20 OR 80 OR [35.2(0),35.3(0)]
	Valid (ft) decision based on evidence (scores at least mark B)	1	D	eg no from explicit working seen
Total marks for question		4		
Q2	Uses substitution method or reverse processing	1 or	E	12+1.5×20(=42) OR 50=12+1.5W OR $\frac{(50-12)}{1.5} (= 25.33..)$
	Correct answer(s) to process used	2	EF	42 OR [25, 26] OR 38 AND 30
	Valid (ft) decision based on evidence (scores mark E)	1	G	eg yes from explicit working seen
Total marks for question		3		

Question	Process	Mark	Mark Grid	Evidence	
SECTION A MOBILE HAIRDRESSER					
Q3	Works with client features	1 or	H	3 of: start time, finish time, client name, job details for at least 1 client	
	Works with all client features	2	HJ	all of: start time, finish time, client name, job details for at least 1 client	
	Works with placement time	1 or	K	places at least 2 clients in diary at suitable times on suitable days (client name and start time minimum)	
	A fully correct solution	2	KL	places all clients in diary at suitable times (client name and start time minimum)	
Total marks for question		4			

Question	Process	Mark	Mark Grid	Evidence
SECTION A MOBILE HAIRDRESSER				
Q4	Process to calculate miles driven or to use mileage readings	1	M	8763-8593(=170) OR eg 8593+195(=8788)
	Uses conversion between litres and gallons	1	N	converts litres to gallons $\frac{22.7}{4.54} (= 5)$ OR converts miles per gallon to miles per litre $\frac{39}{4.54} (= 8.59)$
	Coordinates all features	1 or	P	OR converts gallons she should need to litres she should need $4.3589... \times 4.54 (= 19.78...)$ consumption $\frac{'170'}{'5'} (= 34)$ OR miles she should get $'8.59' \times 22.7 (= 195)$ or $'5' \times 39 (= 195)$
	Calculates figures for a comparison	2	PQ	OR Gallons she should need $\frac{'170'}{39} (= 4.3589...)$ OR Miles per litre she get $\frac{'170'}{22.7} (= 7.49)$ 34 OR 195 OR [4.3,4.4] OR [19.5,20.0] OR [8.59,8.6] and [7.49,7.5]
Makes statement of valid comparison (ft) (scores marks M, N and P)	1	R	eg she got less miles per gallon OR eg she did not get enough miles OR eg she used more petrol	
Total marks for question		5		

Question	Process	Mark	Mark Grid	Evidence
SECTION B CYCLING				
Q5	Begins to address features	1 or	A	2 of input opportunities cars separated, start or end time (time given or heading) or elapsed time, two periods in each of 3 hours
	Develops solution	2 or	AB	input opportunities for vehicles AND 1 of cars separated, start or end time (time given or heading) or elapsed time, two periods in each of 3 hours
	Adds features	3 or	ABC	input opportunities for vehicles AND at least 2 of cars separated, start or end time (time given or heading) or elapsed time, two periods in each of 3 hours
	Complete solution	4	ABCD	all of efficient input opportunities for vehicles, cars separated, start time (time given or heading), end time (time given or heading), two periods in each of 3 hours
Total marks for question		4		

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Question	Process	Mark	Mark Grid	Evidence
SECTION B CYCLING				
Q6 (a)	Process to convert 34 inches to cm OR trial & error process to convert cm leg lengths to 34 inches	1 or	E	$34 \times 2.54 (=86.36)$ OR T & I including $\frac{86.5}{2.54} (= 34.055..)$
	Correct decision made	2	EF	58.5 or 57.0 accept 86.5 or 84.0
Q6 (b)	Suitable reverse check of part (a)	1	G	eg $\frac{86.36}{2.54} (= 34)$ OR $\frac{86.36}{34} (= 2.54)$ OR $34.055.. \times 2.54 = 86.5$ OR $\frac{86.5}{34.055} (= 2.54)$
Q6 (c)	Chooses the correct number of scoops for a litre or a bottle	1	H	4 (per litre) OR 3 (per bottle)
	Uses consistent units	1	J	$1.5(\text{kg})=1500(\text{g})$ OR $750(\text{ml})=0.75(\text{l})$
	Works with all features	1 or	K	$'4' \times 25 \times 0.75 (=75)$ OR $1500 \div ('4' \times 25) (=15)$ OR $1.5 \div 0.025 (=60)$ OR $1500 \div 25 (=60)$
	Works to find number of bottles Correct number of bottles of drink fit	2 1	KL M	$1500 \div '75' (=20)$ OR $'15' \div 0.75 (=20)$ OR $'60' \div 3 (=20)$ 20 (4 scoops), 16(5 scoops) 13(.3) or 14 (6 scoops)
Total marks for question		8		

Question	Process	Mark	Mark Grid	Evidence
SECTION B CYCLING				
Q7	Compares 1 time of each person	1 or	N	fastest times: Chris 23 minutes 42 seconds and Kieran 23 minutes 46 seconds OR most recent times: Chris 23 minutes 45 seconds Kieran 23 minutes 46 seconds
	OR works with mean			Starts to total times for either cyclist
	OR finds medians			Calculates medians: Chris 23 minutes 45 seconds (based on 5) or 23 minutes 54 seconds (based on 6), Kieran 23 minutes 56 seconds
	OR compares ranges			calculates range in times for both: Chris 42 seconds and Kieran 30 seconds
	Looks at results of races where both took part counts wins	2 or	NP	Chris faster 3 times OR Kieran faster twice OR shows 5 differences (at least 3 correct) OR
	OR Process to calculate mean time for either person (Chris for 5 or 6 races)			Finds a mean for either cyclist OR Chris '142.4'÷6(=23.73...), Kieran '119.8'÷5(=23.96...),
	Process to calculate mean time for each person for the races they did OR process to	3	NPQ	Chris '144'÷6(=24), Kieran '120'÷5(=24) OR Chris '120mins2sec'÷5(=24.00....), Kieran '120'÷5(=24)

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<p>calculate mean time for 5 races both did</p> <p>OR Looks at results of races where both took part counts wins AND compares ranges</p> <p>Valid (ft) decision based on explicit working</p>	1	R	<p>Chris faster 3 times Kieran faster twice OR finds median AND calculates range in times for both: Chris 42 seconds and Kieran 30 seconds</p> <p>eg Chris's fastest is quicker than Kieran's OR Chris beat Kieran in June OR Kieran is more consistent (times less spread out) OR Chris has beaten him 3 of 5 OR impossible to tell their mean times are the same or their results are too similar etc</p>
Total marks for question		4	

Question	Process	Mark	Mark Grid	Evidence
SECTION C TEA COMPANY				
Q8	Produces an attempt at a net for box	1 or	A	produces a net of an open (5 faces) OR closed (6 faces) box either 5 or 6 joined rectangles that could be a net required; rectangles may have wrong dimensions net has correct dimensions and joining of 6 faces (ignore tabs if drawn) or a sketch with all dimensions clearly shown 18cm by 13 cm OR 14cm by 11cm OR 10cm by 16cm OR 16cm by 14cm OR 18cm by 11cm OR 14cm by 13cm OR ft their diagram, at least 4 faces shown (allow variations if tabs of stated size included)
	Produces a correct net for closed box	2	AB	
	Provides dimensions for rectangular card to fit (ft)	1	C	
Total marks for question		3		

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Question	Process	Mark	Mark Grid	Evidence	
SECTION C TEA COMPANY					
Q9 (a)	Describes 1 trend	1 or	D	e.g. tonnes of standard tea sold are falling OR tonnes of herbal tea sold are rising	
	Describes both trends	2	DE	OR total sales are similar for 2009 and 2010 OR standard tea more popular than herbal tea	
Q9 (b)	Appropriate graph or chart – bar, stick, line graph, composites, duals, points plotted	1 or	F	e.g. tonnes of standard tea sold are falling AND tonnes of herbal tea sold are rising OR people are switching from standard to herbal	
		2	FG	1 of linear scale(s), labels (at least 2 of tea type, years, tonnes), plotting (2mm tolerance)	
		3	FGH	2 of linear scale(s), labels (at least 2 of tea type, years, tonnes), plotting (2mm tolerance)	
Total marks for question		5			

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Question	Process	Mark	Mark Grid	Evidence
SECTION C TEA COMPANY				
Q10 (a)	States correct fraction or good estimation	1 or	J	$\frac{331560}{368400}$ OR $\frac{1}{10}$ OR $\frac{(368400)}{(331560)} = \frac{10}{9}$ or 1.1... OR $\frac{33(0000)}{37(0000)}$
Q10 (b)	States correct vulgar fraction in simplest form or correct decimal fraction	2	JK	$\frac{9}{10}$ OR 0.9 OR 90%
	Works with 5%	1 or	L	$0.05 \times 10600 (=530)$ or $0.05 \times 15400 (=770)$ or $0.05 \times 26000 (=1300)$ OR $1.05 \times 10600 (=11130)$ or $1.05 \times 15400 (=16170)$ or $1.05 \times 26000 (=27300)$
	Correct answer for any one of the above	2	LM	530, or 770, or 1300, or 11130, or 16170, or 27300, or 38140
	Works with quarter	1 or	N	$\frac{1}{4} \times 368400 (=92100)$ OR $\frac{3}{4} \times 368400 (=276300)$ OR $\frac{1}{4} \times (368400 + 530 + 770) (=92425)$ OR $\frac{3}{4} \times (368400 + 530 + 770) (=277275)$
	Correct answer for either Process to calculate total change in wages OR process to calculate budget for wages	2 1 or	NP Q	92100 OR 276300 '92100' + '530' + '770' (=93400) OR '92100' + '1300' (=93400) OR '276300' - '11130' - '16170' - 10840 (=238160) OR '276300' - '27300' - 10840 (=238160) OR $331560 - '92100' - 530 - 770 (=238160)$ OR $331560 - '92425' (=239135)$
Actual budget for wage bill found	2	QR	£238160 correct money notation only	
Total marks for question		8		





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