

Functional Skills Mathematics

Level 2 assessment

Marking scheme Stargazing Paper
PAPER-BASED



SAMPLE 3

Level 2 Sample 3

Question	Mark	R	A	I	Open	Fixed					
1A	6	3	3	0	6	0					
1B	3	1	2	0	3	0					
1C	1	0	0	1	1	0					
1D	2	1	1	0	2	0					
1E	3	1	2	0	3	0					
1F	2	1	1	0	2	0					
1G	5	0	1	4	5	0					
1H	3	0	0	3	3	0	7	10	8	25	0
2A	4	2	2	0	4	0					
2B	4	2	2	0	3	1					
2C	6	4	2	0	6	0					
2D	2	1	1	0	2	0					
2E	4	2	2	0	4	0					
2F	5	0	1	4	5	0	11	10	4	24	1
3A	4	1	1	2	4	0					
3B	4	0	0	4	4	0					
3C	4	1	2	1	2	2					
3D	4	2	2	0	4	0					
3E	2	0	0	2	2	0					
3F	2	0	1	1	2	0					
3G	3	1	1	1	3	0					
3H	2	1	1	0	2	0	6	8	11	23	2
75		24	28	23	72	3					
		32%	37%	31%	96%	4%					

NB incorrect money format given as an answer should only be penalised **once** on the whole paper and will lose 1 mark, eg Task 1 1A (£)163.2 loses one mark. Do not penalise any subsequent incorrect format.

Maths Level 2: Task 1 – Stargazing

Question	Total marks	Marks	Marks awarded for
1A	6	2	(£)163.20 for Leo
		1	(£)28.80 seen or correct method for 15% or 85% eg $x\ 0.15$ or $x\ 85\div 100$
		2	(£)252 for Orion
		1	(£)36 seen or correct method for $\frac{1}{8}$ or $\frac{7}{8}$ eg $\div\ 8$ or $x\ 7\div 8$
		2	(£)180 for Copus
		1	x 10 seen
1B	3	3	(£)20.40 for Leo AND (£)25.20 for Orion AND (£)45 for Copus follow through 1A
		2	(£)20.40 for Leo or (£)25.20 for Orion or (£)45 for Copus
		1	correct method for 12.5% or 10% or 25%
1C	1	1	suitable explanation for chosen event eg 'Leo because it's the cheapest' follow through 1A and 1B
1D	2	1	(£)142.80 for Leo OR (£)226.80 for Orion OR (£)135 for Copus follow through 1A and 1B
		1	26 th April for Leo OR 6 th May for Orion OR 13 th May for Copus
1E	3	3	(£)1.70 AND (£)11.90 for Leo OR (£)2.10 AND (£)18.90 for Orion OR (£)3.75 AND (£)11.25 for Copus follow through 1A and 1B
		2	(£)1.70 or (£)11.90 for Leo or (£)2.10 or (£)18.90 for Orion or (£)3.75 or (£)11.25 for Copus
		1	$\div 12$ seen
1F	2 no marks for repeat calc	2	a complete correct check of any original calculation seen using a different method eg a reverse calculation or a calculation using approximate values
		1	a correct check which is not finished
1G	5	1	clear table structure with rows and columns and some suitable headings/labels
		1	headings/labels for total costs, deposits, balances for group AND per person AND (balance due) date
		2	all data correctly entered for their headings/labels WITH units
		1	all data correctly entered for their headings/labels with one omission or without units
		1	correct total cost per person seen anywhere
1H	3	3	three comments specific to the candidates work AND relevant to one or more review prompts ie other information; sensible answers; methods; difficulty; things to do differently Note: do not accept generic statements
		some acceptable comments	
		eg I would like to have known what the chances of seeing the stars were for each site	
		some unacceptable comments	
		eg I had all the information I needed (ie no specific references to task)	

			eg Results are sensible because £13.60 each seems reasonable (for Leo)	eg My answers seemed sensible (ie no specific references to task)
			eg my methods worked well because the individual amounts were consistent with the group total	eg My methods worked well (ie no specific references to task)
			eg I found finding the percentages difficult	eg I found Q1b difficult (ie no specific references to task)
			eg I would do nothing differently as all the calculations allowed me to choose the cheapest site	eg I would do nothing differently (ie no specific references to task)
		2	two comments	
1	one comment			
Total for task 1 = 25 marks				

Maths Level 2: Task 2 – Holiday in Sweden			
Question	Total marks	Marks	Marks awarded for
2A	4	2	(£)795.88 Accept (£)795 OR (£)796
		1	(£)795.8801498 URT or ÷10.68 seen
		2	(\$) 1020
		1	x 0.12 seen
2B	4	1	6 hours WITH units <i>Note: ignore references to ahead or behind or + or –</i>
		3	7am WITH units OR 07:00 OR 0700 <i>follow through their time difference</i>
		2	7 WITHOUT units or 31:00 seen in working
		1	1am or equivalent for New York departure time + 9.5 hours accept 25:00 seen in working or 21:30 or 9:30pm for New York departure time + 6 hours
2C	6 See example answers in table below	1	route including all four places to visit
		4	all five distances correct WITH units
		3	three distances correct WITH units or all five distances correct without units
		2	two correct distances with or without units or all five unscaled distances ie squares or centimetres
		1	two unscaled distances ie squares or centimetres or 1 square = 100m or 1 centimetre = 100m seen
		1	correct total distance for their route
2D	2	2	correct explanation of scale used in 2C with reference to scale AND length of scaled line AND actual length eg 2 squares = 200m so 8 squares = 800m eg 1 square = 100m so 8 squares = 800m
		1	a partial check of scale used in 2C with reference to scale or length of scaled line and actual length eg 2 squares = 200m eg 11 squares = 1100m
2E	4 See example answers in table below	4	all five times correct to nearest minute <i>follow through 2C</i>
		3	four correct times to the nearest minute or all five unrounded times in minutes
		2	one time correct to the nearest minute or three unrounded times in minutes or all five times in decimal hours
		1	÷5 seen for converting distance to decimal hours or 12 minutes or 0.2 hours for 1km seen
2F	5	1	structure of a timetable showing clear sequence AND some suitable headings AND times
		1	labelling of each place on the route
		3	departure and arrival times for all places <i>follow through 2E</i>
		2	departure and arrival times for two places in sequence or consistent departure OR arrival times for all places with or without 45 minute waiting time added and 180 minutes for lunch
		1	arrival time back at hotel shown using their timings
Total for task 2 = 25 marks			

Example answers for 2C, 2E

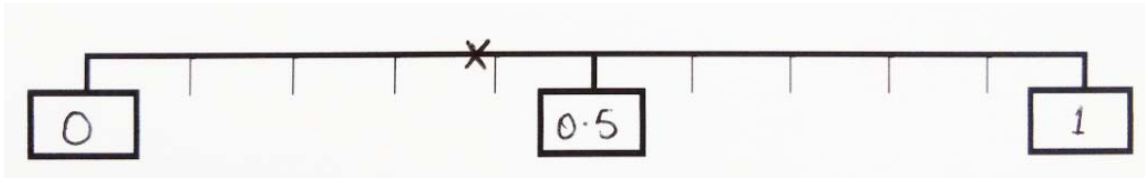
From	To	2C distance	2E time in minutes (unrounded time)
Hotel	Viking boat	700m	8 (8.4)
Viking boat	Café	800m	10 (9.6)
Café	Fish market	700m	8 (8.4)
Fish market	City Park	1400m	17 (16.8)
City Park	Hotel	800m OR 1400m	10 (9.6) OR 17 (16.8)
Viking boat	Fish market	1100m	13 (13.2)
Fish market	Café	700m	8 (8.4)
City Park	Viking boat	1500m	18
Café	Hotel	500m	6

Example timetable for 2F

Place	Arrival	Departure
Hotel		10:00
Viking boat	10:08	10:53
Café	11:03	12:33
Fish market	12:41	13:26
City park	13:43	14:28
Hotel	14:38	

Maths Level 2: Task 3 – Half marathon training			
Question	Total marks	Marks	Marks awarded for
3A	4	2	0.375 OR 37.5% OR 3/8 OR 3 in 8 chance OR 3 out of 8 do not allow 3:8 nor 3:5
		1	÷8 seen
		2	probability scale showing either 0–1 or 0–100% or ‘impossible’ / ‘certain’ as end points AND showing their probability ±2 percentage points
		1	probability scale drawn showing their probability ±4 percentage points ie ±5 small squares with or without end points labelled
3B	4	1	trend line (line of best fit) drawn for given data showing negative correlation with approximately equal plots either side of the trend line for JJ
		1	trend line (line of best fit) drawn for given data showing negative correlation with approximately equal plots either side of the trend line for you
		2	two valid comments comparing you and JJ eg both runners are getting faster AND I’m improving faster than JJ
		1	one valid comment comparing you and JJ
3C	4	4	Yes for you AND suitable explanation eg Yes, 2.2 < 2.5 hours eg Yes, 2.2 hours is faster than 2.5 hours AND No for JJ AND suitable explanation eg No, 2.676 > 2.5 hours eg No, 2.676 hours is slower than 2.5 hours
		3	Yes for you and suitable explanation or No for JJ and suitable explanation
		2	correct substitution into formula for you or JJ
		1	any two correct values for T or F ie 1.9 for you or 2.1 for JJ or 0.12 for you or 0.06 for JJ
3D	4	4	02:12:06
		3	02:12:00 and 02:12:12 for 8 th and 9 th values identified
		2	02:12:00 or 02:12:12 from 8 th or 9 th value or 02:11:42 or 02:11:48 or 02:13:12 or 02:13:18 from one error in ordering times
		1	evidence of some ordering of times in ascending or descending order
3E	2	1	valid comparison eg mean time is slower than median time follow through 3D
		1	valid explanation eg median excludes the slow outliers eg mean includes two very slow times
3F	2	2	suitable comment with converted value eg my time is faster than the mean AND mean = 2.386 hours OR my time = 02:13:26 eg my time is similar to the median AND median = 2.202 hours follow through 3C and 3D
		1	one relevant time converted with no explanation or incorrect interpretation
3G	3	2	02:02:00
		1	01:50:48 and 03:52:48 seen
		1	suitable explanation eg range shows the times varied a lot
3H	2 no marks for repeat calc	2	a complete correct check of any original calculation seen in 3G using a different method eg a reverse calculation OR a calculation using approximate values
		1	a correct check, which is not finished or method for reverse check
Total for task 3 = 25 marks			

Example probability scale for 3A



Level 2			
Coverage and Range (Technical Skills)	Task 1	Task 2	Task 3
C2.1 Understand and use positive and negative numbers of any size in practical contexts	✓	✓	✓
C2.2 carry out calculations with numbers of any size in practical contexts, to a given number of decimal places	✓	✓	✓
C2.3 Understand, use and calculate ratio and proportion, including problems involving scale	✓	✓	
C2.4 Understand and use equivalences between fractions, decimals and percentages	✓	✓	✓
C2.5 Understand and use simple formulae and equations involving one- or two-step operations			✓
C2.6 recognise and use 2D representations of 3D objects		✓	
C2.7 find area, perimeter and volume of common shapes			
C2.8 use, convert and calculate using metric and, where appropriate, imperial measures		✓	
C2.9 collect and represent discrete and continuous data, using ICT where appropriate	✓	✓	✓
C2.10 use and interpret statistical measures, tables and diagrams, for discrete and continuous data, using ICT where appropriate			✓
C2.11 use statistical methods to investigate situations			✓
C2.12 use probability to assess the likelihood of an outcome			✓