gateway qualifications

Functional Skills

Maths – Level 1

Sample

Mark Scheme and Marking Guidance

The following documents are included in this marking guidance:

- General marking guidance and assessment principles.
- Mark schemes and guidance.

Assessment Code: FSML1AB/P

General marking guidance

General

- All candidates must receive the same treatment. You must mark the first candidate in exactly the same way as you 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.
- All the marks on the mark scheme are designed to be awarded. You should always award full marks if deserved, i.e. if the answer matches the mark scheme and the working out shown is credible and relevant. You should also be prepared to award zero marks if the candidate's response is not worthy of credit according to the mark scheme.

Acceptable responses

All of the following are acceptable types of responses.

- Writing initials of objects
- Drawings or symbols
- Drawing lines to show position or matches
- Evidence of counting
- Marking in any way to indicate choices.

Applying the Mark Scheme

- The mark scheme states the marks awarded for the process and the answer. In most questions, the majority of marks are awarded for the process the candidate uses to reach an answer. The most likely processes used by candidates are given. However, if the candidate gives different evidence for a correct process you should award the mark(s).
- Removed bullet about marking crossed out work
- If the candidate shows more than one set of working, then you should mark the one you consider to be closest to the mark scheme.
- If it appears that the candidate has misread the question, marks can still be awarded for applying the correct process.
- You will often see correct working followed by an incorrect decision, showing that the candidate can calculate but does not understand the demand of the functional question. The mark scheme will make clear how to mark these questions.
- Where transcription errors occur and the candidate presents a correct answer in working, but writes it incorrectly as the answer, mark the better answer.
- **Error carried forward** marks (**ecf**) must only be awarded when explicitly allowed in the mark scheme. Where the process uses the candidate's answer from a previous step, this is clearly shown.

- Marks can usually be awarded where units are not shown. Where units, including money, are required this will be stated explicitly. For example, 5(m) or (£)256.40 indicates that the units do not have to be stated for the mark to be awarded, as the units are in brackets.
- **Correct money notation** (**cmn**) indicates that the answer, in money, must have correct notation to gain the mark. This means that money should be shown as £ or p, with the decimal point correct and two decimal places if appropriate.
    e.g. if the question working led to £12 ÷ 5, then
    - mark as correct: £2.40, 240p, £2.40p
    - mark as incorrect: £2.4, 2.40p, £240p, 2.4, 2.40, 240.
- Candidates may present their answers or working in many **equivalent ways**. This is denoted as '**oe'** – 'or equivalent' in the mark scheme. Repeated addition for multiplication and repeated subtraction for division are common alternative approaches. The mark scheme will specify the minimum required to award these marks.
- **Parts of questions**: because most Functional Skills questions are unstructured and open, you should be prepared to award marks for answers that are not in their expected position, e.g. an answer expected in a later part of a question may be given earlier in the candidate's response.

Using the mark scheme

- Apply the mark scheme methodically.
- Most mark points are single. However, where required:
    - initially apply the unshaded section for each question
    - if this is not achieved, then work down the shaded rows until you find the mark point(s) evidenced by the candidate's response
    - if none of the mark points in the shaded sections are met then award 0 for that part of the question.

Section A – Buying a Phone

Question	Answer	Marks	Skills
1	*Sampson* Represents the calculation for 1/3 discount: (£)399 x 1/3 **OR** (£)399/3 **OR** (£)399 x 0.3(3)	1	R
	Sampson Calculates discount: (£)133	1	A
	PHC Represents the calculation for 20% discount: (£)350(20/100) **OR** (£)350 x 0.2 **OR** (£)350 ÷ 5 **OR** (£)(350 x 10%) x 2	1	R
	PHC Calculates discount: (£)70	1	A
2	Interprets and calculates that: (because) it is the most discount in terms of proportion of original price **OR** 1/3 or 33.33% is a greater discount than 20% or 1/5 Allow: ecf from miscalculation of discounts	2	I, A
	It is the largest value in terms of money **OR** more money is saved **OR** £133 pounds discount is greater than £70 Allow: ecf from miscalculation of discount	(1)	(I)
	Sampson	1	I
3(a)	*PHC* £280 **AND** *Sampson* £266 Allow: ecf from miscalculation of discount in **Q1**	1	A
3(b)	Complete valid check of both original calculations seen in **Q3(a)** using a different method e.g. a reverse calculation e.g. (£)280 + 70 = (£)350 **AND** (£)266 + (£)133 = (£)399 **OR** a calculation using approximate values	2	A, R
	A correct check which is not finished	(1)	(R)

4	Interprets need for: table with rows and columns **AND** headings for PHC and Sampson	1	I
	Represents: minutes listed as PHC 500 **AND** Sampson 400	1	R
	Represents: texts as PHC unlimited **AND** Sampson 400 **AND** MB of data as PHC 500 **AND** Sampson 750	1	R
	Calculates to give direct comparison: **both** costs for calls over limit given **per minute** or **per two minutes**	1	A
5	Interprets by giving: choice of Sampson or PHC with one valid **comparative** reason e.g. Sampson because it is cheaper Sampson because it has the biggest discount Sampson because it gives the most data PHC because it gives more / unlimited texts PHC because it gives more call minutes / an extra 100minute calls	1	I
6	Interprets that the two months are: January **AND** April	2	I
	Interprets that he exceeds his allowance: twice / two times **AND** states one of the two months, i.e. January **OR** April	(1)	(I)
7	Interprets chart to extract **all 6** correct numbers of minutes: 520, 360, 350, 560, 390, 400	2	I
	Interprets chart to extract **at least 3** correct numbers of minutes	(1)	(I)
	Calculates total number of minutes by adding extracted numbers: 2 580 (minutes) Allow: ecf from incorrect minutes taken from chart and added correctly	1	A
	Calculates mean by dividing by 6: 2 580 ÷ 6 = 430 (minutes) Allow: ecf from incorrect minutes taken from chart, added correctly and divided by 6	1	A

8	Calculates the cost of Phones to go: (£)3.80 cmn	1	A
	Interprets that: Phones to go is the **cheapest** per month	1	I
	Interprets that he should buy: Phones to go insurance	1	I
			Total = 24 marks

Section B - Volunteering			
Question	**Answer**	**Marks**	**Skills**
1(a)	Interprets overall shape of playground: all lines form a rectangle	1	I
	Represents the length of the playground: 15 squares Allow: tolerance of +/- ¼ of a square	1	R
	Represents the width of the playground: 10 squares Allow: tolerance of +/- ¼ of a square	1	R
1(b)	Interprets and represents: drawing of sand pit is 1 square from the edge of the playground on **two** of its sides Allow: tolerance of +/- ¼ of a square	2	I, R
	Represents: drawing of sand pit is 1 square from the edge of the playground on **one** of its sides Allow: tolerance of +/- ¼ of a square	(1)	(R)
	Conversion of cm to m at any point	1	R
	Represents sand pit drawing: length of 2 squares Allow: tolerance of +/- ¼ of a square	1	R
	Represents sand pit drawing: width of 1.5 squares Allow: tolerance of +/- ¼ of a square	1	R
2	Conversion of cm to m at any point: e.g. 150(cm) ÷ 100 = 1.5m **OR** 200(cm) ÷ 100 = 2m Allow: from values used in calculation	1	R
	Represents the calculation to find the area: 1.5(m) x 2(m)	1	R
	Calculates area: 3(m^2)	1	A

3	Represents the calculation to find perimeter: 1.5(m) + 1.5(m) + 2(m) + 2(m) **OR** 2(1.5(m)) + 2(2(m)) **OR** 150(cm) + 150(cm) + 200(cm) + 200(cm) **OR** 2(150(cm)) + 2(200(cm)) Do not allow: mixed units	1	R
	Calculates perimeter/length of fence: 7(m) or 700(cm)	1	A
4(a)	Represents the calculation to find number of bags required: 2 800 ÷ 900 **OR** repeated subtraction of 900 from 2 800	1	R
	Calculates number of bags required: 3.1' (division) **OR** 3 remainder 100 (repeated subtraction)	1	A
	Interprets that you cannot buy 0.1' of a bag: 4 (bags of sand) Allow: ecf from miscalculated number of bags if then answer is **rounded up**	1	I
4(b)	Complete valid check of original calculations seen in **Q4(a)** using a different method e.g. a reverse calculation or a calculation using approximate values	2	A, R
	A correct check which is not finished	(1)	(R)
5	Represents the calculation to find cost of 6 bags of toys: (£)37 x 6 **OR** repeated addition of 6	1	R
	Calculates the cost of 6 bags of toys: (£)222	1	A
	Interprets that: Zeb is correct (he doesn't have enough money by £22)	1	I
			Total = 21 marks

Item Breakdown Grid Level 1

Section A – Buying a Phone															
Question	**Skills standards**	**Coverage and Range**													
		a	**b**	**c**	**d**	**e**	**f**	**g**	**h**	**i**	**j**	**k**	**l**	**m**	**n**
1	R, A	■	■	■				■				■			
2	I, A	■		■				■							
3(a)	A	■	■												
3(b)	R, A	■	■												
4	R, A, I	■											■		
5	I	■						■							
6	I											■			
7	A, I	■	■									■		■	
8	A, I				■			■							

Section A – Buying a Phone															
Question	**Skills standards**	**Coverage and Range**													
		a	**b**	**c**	**d**	**e**	**f**	**g**	**h**	**i**	**j**	**k**	**l**	**m**	**n**
1(a)	R, A	■	■					■	■		■				
1(b)	I, A	■	■					■	■		■				
2	A	■						■	■	■					
3	R, A	■	■		■			■		■					
4(a)	R, A, I	■	■												
4(b)	I	■	■												
5	I	■	■					■							

<table>
<tr><th>Skills standards</th><th>Coverage and range</th><th>Assessment weighting</th></tr>
<tr><td>Representing
1. Understand practical problems in familiar and unfamiliar contexts and situations, some of which are non-routine.

2. Identify and obtain necessary information to tackle the problem.

3. Select mathematics in an organised way to find solutions.</td><td rowspan="3">a) Understand and use whole numbers and understand negative numbers in practical contexts;

b) Add, subtract, multiply and divide whole numbers using a range of strategies;

c) Understand and use equivalences between common fractions, decimals and percentages;

d) Add and subtract decimals up to two decimal places;

e) Solve simple problems involving ratio, where one number is a multiple of the other;

f) Use simple formulae expressed in words for one- or two-step operations;

g) Solve problems requiring calculation with common measures, including money, time, length, weight, capacity and temperature;

h) Convert units of measure in the same system;

i) Work out areas and perimeters in practical situations;

j) Construct geometric diagrams, models and shapes;

k) Extract and interpret information from tables, diagrams, charts and graphs;

l) Collect and record discrete data and organise and represent information in different ways;

m) Find mean and range;

n) Use data to assess the likelihood of an outcome.</td><td>30-40%</td></tr>
<tr><td>Analysing
4. Apply mathematics in an organised way to find solutions to straightforward practical problems for different purposes.

5. Use appropriate checking procedures at each stage.</td><td>30-40%</td></tr>
<tr><td>Interpreting
6. Interpret and communicate solutions to practical problems, drawing simple conclusions and giving explanations.</td><td>30-40%</td></tr>
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