

Mark Scheme (Results)

February 2018

Functional Skills Mathematics Level 2

FSM02

Functional Skills Qualifications from Pearson

Functional Skills qualifications from Pearson, the world's leading learning company. We provide a wide range of qualifications including academic, vocational, occupational and specific programmes for employers. For further information visit our qualifications website at qualifications.pearson.com. Alternatively, you can get in touch with us using the details on our contact us page.

Pearson: helping people progress, everywhere

Our aim is to help everyone progress in their lives through education. We believe in every kind of learning, for all kinds of people, wherever they are in the world. We've been involved in education for over 150 years, and by working across 70 countries, in 100 languages, we have built an international reputation for our commitment to high standards and raising achievement through innovation in education. Find out more about how we can help you and your students at: www.pearson.com/uk

February 2018

Publications Code FSM02_01_1802_MS

All the material in this publication is copyright

© Pearson Education Ltd 2018

**FUNCTIONAL SKILLS (MATHEMATICS)
MARK SCHEME – LEVEL 2 – FEBRUARY 2018**

Guidance for Marking Functional Skills Maths Papers

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. You should also be prepared to award zero marks if the candidate's response is not worthy of credit according to the mark scheme.

Applying the Mark Scheme

- The mark scheme has a column for **Process** and a column for **Evidence**. In most questions the majority of marks are awarded for the process the candidate uses to reach an answer. The evidence column shows the most likely examples you will see if the candidate gives different evidence for the process, you should award the mark(s).
- **Finding 'the answer'**: in written papers, the demand (question) box should always be checked as candidates often write their 'final' answer or decision there. Some questions require the candidate to give a clear statement of the answer or make a decision, in addition to working. These are always clear in the mark scheme.
- If working is **crossed out and still legible**, then it should be marked, as long as it has not been replaced by alternative work.
- If there is a **choice of methods** shown, then mark the working leading to the answer given in the answer box or working box. If there is no definitive answer then marks should be awarded for the 'lowest' scoring method shown.
- A suspected **misread** may still gain process marks.
- It may be appropriate to **ignore subsequent work (isw)** when the candidate's additional work does not change the meaning of his or her answer.
- You will often see correct working followed by an incorrect decision, showing that the candidate can calculate but does not understand the functional demand of the question. The mark scheme will make clear how to mark these questions.
- **Transcription** errors occur when the candidate presents a correct answer in working, and writes it incorrectly (on the answer line in a written paper); mark the better answer.
- **Incorrect method** if it is clear from the working that the "correct" answer has been obtained from incorrect working, award 0 marks. Send the response to review for your Team Leader to check.
- **Follow through marks (ft)** 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. Speech marks are used to show that previously incorrect numerical work is being followed through, for example '**240**' means **their** 240.

**FUNCTIONAL SKILLS (MATHEMATICS)
MARK SCHEME – LEVEL 2 – FEBRUARY 2018**

- 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 (£)256.4 indicates that the units do not have to be stated for the mark to be awarded.
- **Correct money notation** 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 2 decimal places if appropriate. e.g. if the question working led to £12 ÷ 5,
Mark as correct: £2.40 240p £2.40p 2.40£ 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 **oe** 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.
- A **range** of answers is often allowed:
 - [12.5, 105] is the inclusive closed interval
- **Parts of questions:** because most FS questions are unstructured and open, you should be prepared to award marks for answers seen in other parts of a question, even if not explicit in the expected part. E.g. checks in on earlier answer box.
- **Graphs**
The mark schemes for most graph questions have this structure:

Process	Mark	Evidence
Appropriate graph or chart – (e.g. bar, stick, line graph)	1 or	1 of: linear scale(s), labels, accurate plotting (2 mm tolerance)
	2 or	2 of: linear scale(s), labels, accurate plotting (2 mm tolerance)
	3	all of: linear scale(s), labels, accurate plotting (2 mm tolerance)

The mark scheme will explain what is appropriate for the data being plotted.

A **linear scale** must be linear **in the range where data is plotted**, and use consistent intervals. The scale may not start at 0 and not all intervals must be labelled. Thus a graph that is 'fit for purpose' is one where the **data is displayed clearly and values can be read**, will gain credit.

The minimum requirements for **labels** will be given, but you should give credit if a title is given which makes the label obvious.

Plotting must be correct for the candidate's scale. Candidate's scale must be in numerical order. Award the mark for plotting if you can read the values, even if the scale is not linear.

The mark schemes for **Data Collection and/ or summary Sheets** refer to **input opportunities** and to **efficient input opportunities**.

FUNCTIONAL SKILLS (MATHEMATICS)
MARK SCHEME – LEVEL 2 – FEBRUARY 2018

When a candidate gives an input opportunity, it is likely to be an empty cell in a table, it may be an instruction to 'circle your choice', or it may require writing in the data in words. These become efficient, for example, if there is a well-structured 2-way table, or the input is a tick or a tally rather than a written list.

Discuss any queries with your Team Leader.

**FUNCTIONAL SKILLS (MATHEMATICS)
MARK SCHEME – LEVEL 2 – FEBRUARY 2018**

Section A: Adventure holiday

Question	Skills Standard	Process	Mark	Mark Grid	Evidence
Q1	R2	Process to find difference in temperature	1 or	A	$16 - - 5 (=21)$ oe
	I6	Correct answer	2	AB	21(°C)
	A5	Valid check	1	C	Valid check e.g. alternative method or reverse calculation
Total marks for question			3		

FUNCTIONAL SKILLS (MATHEMATICS)
MARK SCHEME – LEVEL 2 – FEBRUARY 2018

Question	Skills Standard	Process	Mark	Mark Grid	Evidence
Q2	R2	Correct currency conversion seen	1	D	e.g. $2000 \div 12.74 (=156.98..)$ or ' 55 ' $\div 12.74 (=4.31..)$ oe or ' 60 ' $\div 12.74 (=4.70..)$ oe or ' 115 ' $\div 12.74 (= \pounds 9.02\dots)$
	A4	Begins to work with percentage	1 or	E	$2000 \times 2.75 \div 100 (= 55)$ oe or $2000 \times 3 \div 100 (= 60)$ oe OR $(2.75 + 3) \div 100 (= 0.0575)$ oe OR ' $156.98..$ ' $\times 2.75 \div 100 (=4.31..)$ or ' $156.98..$ ' $\times 3 \div 100(=4.70..)$
	R3	Full process to find total transaction charge	2	EF	' $4.31\dots$ ' + ' $4.70\dots$ ' $(=9.02\dots)$ OR ' $156.98..$ ' $\times (2.75 + 3) \div 100 (=9.02\dots)$ oe OR $2000 \times (2.75 + 3) \div 100 (= 115)$ oe OR ' 55 ' + ' 60 ' $(=115)$
	I6	Correct answer in correct money notation	1	G	$\pounds 9.02$ or $\pounds 9.03$
Total marks for question			4		

**FUNCTIONAL SKILLS (MATHEMATICS)
MARK SCHEME – LEVEL 2 – FEBRUARY 2018**

Question	Skills Standard	Process	Mark	Mark Grid	Evidence
Q3(a)	R1	Begins to produce summary table	1 or	H	Input opportunities AND headings for two of gender, age, trips, or heading for one of male, female / under 26, 26 and over / fewer than 6 trips, 6 trips or more
	R2	Improves summary table	2 or	HJ	Input opportunities AND headings for all of male, female; under 26, 26 and over; fewer than 6 trips, 6 trips or more Condone separation of 6 and/or 26
	I6	Efficient summary table	3	HJK	Efficient summary table with headings for all of male, female; under 26, 26 and over; fewer than 6 trips, 6 trips or more
	A4	Uses given information	1 or	L	Starts to complete their summary table with given information e.g. completes at least 2 cells correctly in a fully correct summary table OR completes at least 4 cells correctly in their summary table
	A5	Fully efficient completed summary table	2	LM	Completes an efficient table with all 8 cells correctly filled in Condone separation of 6 and/or 26

Example of a fully correct answer

	fewer than 6 trips		6 trips or more	
	under 26 years	26 years and over	under 26 years	26 years and over
male	(1)	(0)	(3)	(6)
female	(3)	(0)	(1)	(4)

FUNCTIONAL SKILLS (MATHEMATICS)
MARK SCHEME – LEVEL 2 – FEBRUARY 2018

Question	Skills Standard	Process	Mark	Mark Grid	Evidence
Q3(b)	R3	Process to work with total weights or weights of allowed bags after swapping or average weight	1 or	N	$21 + 36 + 30 (=87)$ and $3 \times 23 (=69)$ oe OR e.g. $21 + 4 (=25)$ and $36 - 4 (=32)$ OR $(21 + 36 + 30) \div 3 (=29)$
	A4	Full process to find total cost	2 or	NP	e.g. $(‘87’ - ‘69’) \times 12 (=216)$ oe OR $(‘29’ - 23) \times 3 \times 12 (=216)$
	I6	Accurate cost	3	NPQ	216 euros
	I7	Gives suitable redistribution where the sum of the weights is 87 kg and each weight is no more than 32 kg	1	R	e.g. (Abby has) 25 kg, (Belle has) 32 kg, (Zak has) 30 kg e.g. everyone has 29 kg may be indicated by stating costs
Total marks for question			9		

FUNCTIONAL SKILLS (MATHEMATICS)
MARK SCHEME – LEVEL 2 – FEBRUARY 2018

Section B: Coffee shops

Question	Skills Standard	Process	Mark	Mark Grid	Evidence
Q4(a)	A4	Full process to find mean or median	1 or	A	$(225 + 188 + 208 + 241 + 222 + 320) \div 6 (= 234)$ OR $(222 + 225) \div 2 (=223.5)$
	I6	Correct answer for their average	2	AB	234 OR 223.5
	A5	Valid check	1	C	Valid check e.g. alternative method or reverse calculation or estimation
Q4(b)	R2	Process to find the range	1	D	$325 - 175 (= 150)$
	R1	Begins to evaluate formula or working backwards	1 or	E	$100 \times '150' (=15000)$ OR $'150' \div 250 (=0.6)$ OR $250 \times 50 (=12500)$ OR $100 \div 250 (=0.4)$
	A4	Full process to evaluate formula	2	EF	$'15000' \div 250 (=60)$ OR $100 \times '0.6' (=60)$ OR $'12500' \div 100 (=125)$
	I7	Valid conclusion with accurate figures	3	EFG	No AND 60(%) OR No AND 125 and 150
Q4(c)	I7	Provides correct choice and reason	1	H	Month and e.g. uses more values (more to work with) or e.g. might be an unrepresentative week
Total marks for question			8		

FUNCTIONAL SKILLS (MATHEMATICS)
MARK SCHEME – LEVEL 2 – FEBRUARY 2018

Question	Skills Standard	Process	Mark	Mark Grid	Evidence
Q5	R1	Process to find number of coffees sold	1	J	$160 \times 3 \div 2 (=240)$ oe
	A4	Begins to find income from sales or starts to work with a third	1 or	K	'240' \times 2.2 (=528) or $160 \times 1.8 (= 288)$ OR e.g. $2.2 \div 3 (=0.73..)$ or $1.8 \div 3 (=0.6)$
	I6	Full process to find income from sales or profit from individual sales	2 or	KL	'528' + '288' (=816) OR '528' \div 3 (=176) and '288' \div 3 (=96) oe
	A4	Process to find total profit	3 or	KLM	'816' \div 3 (=272) OR '176' + '96' (=272)
	I6	Correct answer	4	KLMN	(£) 272
Total marks for question			5		

**FUNCTIONAL SKILLS (MATHEMATICS)
MARK SCHEME – LEVEL 2 – FEBRUARY 2018**

Question	Skills Standard	Process	Mark	Mark Grid	Evidence
Q6	R1	Interprets problem correctly and begins to address features	1 or	P	Any five of: Leon 7 – 8 am slot and 8 – 9 am slot Naomi 4 hours and starts at 12 pm or later Pat 3 hours and starts at 2 pm Roma 3 hours and starts at 12 pm or later Shola 5 hours 2 staff on 7 – 9 am 3 staff on 12 – 4 pm 1 staff on 4 – 5 pm
	A5	Improves rota	2 or	PQ	Any six or seven of: Leon 7 – 8 am slot and 8 – 9 am slot Naomi 4 hours and starts at 12 pm or later Pat 3 hours and starts at 2 pm Roma 3 hours and starts at 12 pm or later Shola 5 hours 2 staff on 7 – 9 am 3 staff on 12 – 4 pm 1 staff on 4 – 5 pm
	I6	Fully correct rota meeting all constraints	3	PQR	All of: Leon 7 – 8 am slot and 8 – 9 am slot Naomi 4 hours and starts at 12 pm or later Pat 3 hours and starts at 2 pm Roma 3 hours and starts at 12 pm or later Shola 5 hours 2 staff on 7 – 9 am and 3 staff on 12 – 4 pm and 1 staff on 4 – 5 pm
Total marks for question			3		

**FUNCTIONAL SKILLS (MATHEMATICS)
MARK SCHEME – LEVEL 2 – FEBRUARY 2018**

Example of a fully correct answer for Q6

	7 – 8 am	8 – 9 am	12 – 1 pm	1 – 2 pm	2 – 3 pm	3 – 4 pm	4 – 5 pm
Leon							
Naomi							
Pat							
Roma							
Shola							

FUNCTIONAL SKILLS (MATHEMATICS)
MARK SCHEME – LEVEL 2 – FEBRUARY 2018

Section C: Building

Question	Skills Standard	Process	Mark	Mark Grid	Evidence
Q7(a)	R1	Begins to work out area of walls	1 or	A	e.g. $2.5 \times 7.4 (=18.5)$ or $2.5 \times 3 (=7.5)$
	A4	Process to work out total area of walls or 3/4 area of 1 wall or number of bricks needed for one wall	2	AB	'18.5' $\times 2 + '7.5' \times 2 (=52)$ OR '18.5' $\times \frac{3}{4}$ oe (= 13.875) OR '7.5' $\times \frac{3}{4}$ oe (=5.625) OR '18.5' $\times 60 (=1110)$ OR '7.5' $\times 60 (= 450)$
	I6	Process to find area of wall to be bricked or engages with 3/4	1	C	'52' $\times \frac{3}{4} (=39)$ OR $2 \times '13.875' + 2 \times '5.625' (=39)$ OR '52' $\times 60 (=3120)$ oe
	R2	Process to find number of bricks or works with number of bricks in a pack	1 or	D	'39' $\times 60 (= 2340)$ OR '3120' $\times \frac{3}{4} (=2340)$ OR $7 \times 360 (=2520)$ OR '3120' $\div 360 (=8.6\dots)$
	A4	Process to find figures to compare	2 or	DE	'2340' $\div 360 (=6.5)$ OR '3120' $\times \frac{3}{4} \div 360 (=6.5)$ oe OR '39' $\times 60 (= 2340)$ and $7 \times 360 (=2520)$ OR '3120' $\times \frac{3}{4} (=2340)$ and $7 \times 360 (=2520)$ OR '2520' $\div 60 (=42)$ or $360 \div 60 \times 7 (=42)$
	I7	Valid conclusion based on accurate figures	3	DEF	Yes AND 6.5 or 7 (from correct rounding of 6.5) OR Yes AND 2340 and 2520 OR Yes AND 39 and 42 (m ²)

**FUNCTIONAL SKILLS (MATHEMATICS)
MARK SCHEME – LEVEL 2 – FEBRUARY 2018**

Question	Skills Standard	Process	Mark	Mark Grid	Evidence
Q7(b)	R3	Full process to find weight of lime	1	G	$1.7 \div (1 + 5 + 2) \times 2 (=0.425)$
	A4	Correct rounding of calculation	1	H	0.43 Award this mark for an incorrect answer correctly rounded
	A5	Valid check	1	J	Valid check e.g. alternative method, reverse calculation or estimation
Total marks for question			9		

FUNCTIONAL SKILLS (MATHEMATICS)
MARK SCHEME – LEVEL 2 – FEBRUARY 2018

Question	Skills Standard	Process	Mark	Mark Grid	Evidence
Q8	R2	Process to work with volume	1 or	K	$3 \times 0.2 \times 0.1 (=0.06)$ OR $150 \div 2500 (=0.06)$
	A4	Finds figures to compare	2 or	KL	'0.06' \times 2500 (=150) OR $150 \div$ '0.06' (=2500) OR $3 \times 0.2 \times 0.1 (=0.06)$ and $150 \div 2500 (=0.06)$
	I7	Valid conclusion with accurate figure	3	KLM	Yes AND 150 (kg) OR Yes AND 2500 seen from mark KL OR Yes AND 0.06 and 0.06 from both processes
Total marks for question			3		

FUNCTIONAL SKILLS (MATHEMATICS)
MARK SCHEME – LEVEL 2 – FEBRUARY 2018

Question	Skills Standard	Process	Mark	Mark Grid	Evidence
Q9(a)	I7	States scale	1	N	e.g. 1 : 10, 1 cm on the drawing represents 10 cm on the base, 3 cm = 30 cm, a 1 cm line drawn and labelled 10 cm
Q9(b)	R1	Begins accurate drawing of the base	1 or	P	Shows two connected lines each of 3 cm (± 2 mm) in length (1 may be the given line) OR Draws an angle of 120° ($\pm 2^\circ$) OR Draws an equilateral triangle of any size OR Draws a convex hexagon of any size
	I6	Continues accurate drawing of base	2 or	PQ	Shows two connected lines each of 3 cm (± 2 mm) in length making an angle of 120° ($\pm 2^\circ$) (1 may be the given line) OR Draws an equilateral triangle of the correct size
	I6	Completes drawing	3	PQR	Draws a fully correct diagram
Total marks for question			4		

Ofqual



Llywodraeth Cynulliad Cymru
Welsh Assembly Government



Pearson Education Limited is a registered company in England and Wales whose registered office is at 80 Strand, London, WC2R 0RL, United Kingdom, company Registration number 872828, VAT Number GB278 5371 21.