Mark Scheme (Results)

November 2017

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

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- If working is **crossed out and still legible**, then it should be marked, as long as it has not been replaced by alternative work.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.
- 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:

rocess	ark	Evidence
Appropriate graph or chart – (e.g. bar, stick, line graph)	or	1 of: linear scale(s), labels, accurate plotting (2 mm tolerance)
	or	2 of: linear scale(s), labels, accurate plotting (2 mm tolerance)
		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.**
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.

Section A: The plasterer

Question	Skills Standard	Process	Mark	Mark Grid	Evidence
Q1(a)	R2	Begins to process cost of plaster or finds 20% or 120% of any figure	1 or	A	4.48 × 6 (=26.88) oe **OR** 4.48 × 0.2 (=0.896) oe **or** 4.48 × 1.2 (=5.376) oe Allow 4.97 × 0.2 (=0.994) oe **or** 4.97 × 1.2 (=5.964) oe
	A4	Full process to find total price with VAT	2 or	AB	4.48 × 1.2 × 6 (=32.25..) oe **OR** '26.88' × 1.2 (=32.25..) oe
	I6	Total price from accurate figures	3	ABC	(£)[32.25, 32.26]
Q1(b)	R3	Begins to work with time taken in consistent units	1 or	D	58.5 × 20 ÷ 60 (=19.5) (hours) oe **OR** 15 ÷ (60 ÷ 20) (=5) (cost/m^2) **OR** 58.5 × 20 (=1170) **and** 15 ÷ 60 (=0.25) oe
	A4	Full process to find total charge for labour	2 or	DE	'19.5' × 15 (= 292.5) **OR** 58.5 × '5' (= 292.5) **OR** '1170' × '0.25' (= 292.5)
	I6	Correct charge from accurate figures in correct money notation	3	DEF	£292.50
	A5	Valid check	1	G	Valid check e.g. reverse calculation or alternative method or use appropriate estimation
Total marks for question			**7**		

Question	Skills Standard	Process	Mark	Mark Grid	Evidence
Q2	R3	Works in consistent units	1	H	e.g. 4.5 (m) **or** 2.5 (m) **or** 0.8 (m) **or** 200cm May be seen in subsequent working
	I6	Measures the accurate diagram	1	J	9 (cm) oe **and** 5 (cm) oe May be implied by correct converted length or seen on the diagram 2mm tolerance throughout for measurements from diagram
	R2	Engages with scale	1	K	e.g '9' × 50 (=450) **OR** '5' × 50 (=250) May be seen in subsequent working
	A4	Process to find area that needs plastering (with or without door area) or area covered by 4 bags or area of diagram	1 or	L	3 × 4 (= 12) **OR** '2.5' × '4.5' (=11.25) oe **OR** '9' × '5' (=45) oe **OR** Allow '11.25' – 2 × '0.8' (=9.65) (m^2) oe
	R1	Full process to find figures to compare	2 or	LM	e.g. '11.25' ÷ 3 (=3.75) **or** 9.65' ÷ 3 (=3.216..) oe **OR** '11.25' ÷ 4 (=2.8..) **or** '9.65' ÷ 4 (=2.4..) oe **OR** 3 × 4 (= 12) **and** '2.5' × '4.5' (=11.25) oe **OR** 3 × 4 (= 12) **and** '9.65'
	I7	Correct decision from accurate figures from measurements within the range	3	LMN	Yes **AND** 12 (m^2) **and** 11(.25) (m^2) **OR** Yes **AND** 12 (m^2) **and** 9(.65..) (m^2) **OR** Yes **AND** 3.2(16..) (bags) **or** Yes **AND** 3.7(5) (bags) **OR** Yes **AND** 2.4(..) (m^2) **or** Yes **AND** 2.8(..) (m^2)
Total marks for question			**6**		

Question	Skills Standard	Process	Mark	Mark Grid	Evidence
Q3	R3	Begins to engage with ratio	1 or	P	3.5 ÷ 3 (=1.16..) **OR** 5 ÷ (3 + 1) (=1.25) **OR** 3 ÷ (3 +1) (=0.75) **OR** 3.5 ÷ 5 (=0.7)
	A4	Full process to find figures to compare	2 or	PQ	e.g. '1.16..' × (3 + 1) (=4.6..) **OR** '1.25' × 3 (=3.75) **OR** 3 ÷ (3 +1) (=0.75) **and** 3.5 ÷ 5 (=0.7) oe
	I7	Correct decision with accurate figures	3	PQR	No **AND** [4.6,4.7] (l) (mixture) **OR** No **AND** 3.75 (l) **or** 3.7 (l) **or** 3.8 (l) (glue) **OR** No **AND** 0.75 **and** 0.7
Total marks for question			**3**		

Section B: Cooking

Question	Skills Standard	Process	Mark	Mark Grid	Evidence
Q4(a)	R3	Works with consistent units of weight	1	A	e.g. 0.5 (kg) **OR** 1800 (grams) May be seen in subsequent calculations
	R1	Begins to work with time or weight	1 or	B	e.g. $1.8 \div$ '0.5' (=3.6) oe **OR** 2×20 (=40) (per kg) **OR** 2(pm) – 10(mins) (=1:50) oe
	A4	Works with cooking time	2 or	BC	'3.6' $\times 20$ (=72) oe **OR** '40' $\times 1.8$ (=72) oe **OR** 2(pm) – 10(mins) – 15(mins) (=1:35) **and** $1.8 \div$ '0.5' (=3.6) **or** 2×20 (=40) (per kg)
	A4	Full process to find start time	3 or	BCD	e.g. 2:00 – '72' – 15 – 10 (=12:23) oe
	I6	Accurate figure	4	BCDE	12:23 (pm) oe
Q4(b)	R1	Complete substitution into formula	1 or	F	$(180 – 121) \div 14$ (=4.2..) **OR** $(6 \times 14) + 121$ (=205)
	I7	Correct decision from accurate calculations	2	FG	No **AND** 4(.2) (gas mark) **OR** No **AND** 205 (°C)
Total marks for question			**7**		

Question	Skills Standard	Process	Mark	Mark Grid	Evidence
Q5(a)	R2	Starts to work with ratio	1 or	H	$250 \div 150$ (=1.6..) **OR** $14 \div 150$ (=0.09..)
	A4	Full process, using figures at an appropriate level of accuracy, to find required amount	2	HJ	'1.6..' $\times$ 14 (=23.3..) **OR** '0.09..' $\times$ 250 (=23.3..) oe
	I6	Accurate figure	1	K	23 (grams) from rounding their answer ft their figure rounded to nearest whole number provided H only is awarded
Q5(b)	I6	Starts to work with conversion graph	1 or	L	Mark seen at x=12 on the graph or better
	R3	Answer figure	2	LM	[345, 355] (g)
Q5(c)	R2	Begins to work with volume	1 or	N	$15 \times 21 \times 7$ (=2205) **OR** $23 \times 23 \times 5$ (=2645)
	A4	Works with second volume	2 or	NP	$15 \times 21 \times 7$ (=2205) **and** $23 \times 23 \times 5$ (=2645)
	I7	Accurate figures and decision	3	NPQ	Either tin or both tins **AND** 2205(cm^3) **and** 2645(cm^3)
	A5	Valid reason for their figures	1	R	ft their figures provided N awarded e.g. volume fits in both tins Tin B will let the cake rise
Total marks for question			**9**		

Section C: Driving school

Question	Skills Standard	Process	Mark	Mark Grid	Evidence
Q6	R3	Process to find mean or median or both totals	1 or	A	(478 + 524 + 511 + 496 + 473) ÷ 5 (=496.4) **OR** 500 × 5 (=2500) **and** 478 + 524 + 511 + 496 + 473 (=2482) **OR** 496 identified as median
	I6	Correct decision from correct calculations	2	AB	Yes/No **AND** 496(.4) (miles) **OR** Yes/No **AND** 2500 **and** 2482
	A5	Valid check	1	C	Valid check e.g. reverse calculation or alternative method
Total marks for question			**3**		

Question	Skills Standard	Process	Mark	Mark Grid	Evidence
Q7	R1	Process to find total for Safety Drive	1	D	$23 \times 15 - 23$ (=322) oe
	R2	Begins to work with percentages	1 or	E	25×0.17 (=4.25) **OR** $25 \times 15 \times 0.17$ (=63.75) oe **OR** $1 - 0.17$ (=0.83)
	A4	Full process to find the total cost or discounted lesson cost for Pass First	2	EF	$25 \times 15 -$ '63.75' (=311.25) oe **OR** $(25 -$ '4.25'$) \times 15$ (=311.25) oe **OR** '0.83' $\times 25$ (=20.75)
	A4	Process to find the total cost for Lo Cost or cost of single discounted lesson for Safety Drive	1 or	G	22×15 (=330) **OR** '322' $\div 15$ (=21.4..) **OR** If E0 F0 awarded allow 25×15 (=375) for this mark only
	I7	Valid decision from accurate figures	2	GH	Yes **AND** (£)330 and (£)322 and (£)311.25 **OR** Yes **AND** (£)[21.4,21.5] and (£)20.75
Total marks for question			**5**		

Question	Skills Standard	Process	Mark	Mark Grid	Evidence
Q8	I6	Process to correctly read the distance between Oxford and Aberdeen	1	J	503 indicated or used
	R2	Begins to solve problem	1 or	K	e.g. 50×0.22 (=11) (gallons in full tank) **OR** '503' ÷ 44 (=11.4..) (gallons required) **OR** 44×0.22 (=9.68) (miles/litre) **OR** 1 ÷ 0.22 (=4.54..) (litres/gallon)
	A4	Full process to find figures to compare	2 or	KL	e.g. '11' × 44 (=484) oe **OR** 50×0.22 (=11) **and** '503' ÷ 44 (=11.4..) **OR** '503' ÷ '9.68' (=51.9..) oe **OR** '503' ÷ '11' (=45.7..) **OR** '11.4' ÷ 0.22 (=51.9..)
	I7	Valid decision with accurate figures from their correct working	3	KLM	No **AND** 484 (miles) (**and** 503 (miles)) **OR** No **AND** 11 (gallons) **and** 11.4.. (gallons) **OR** No **AND** 51.9.. (litres) **OR** No **AND** 45.7 (mpg) NB only penalise the incorrect reading from the table in J mark. K, L, M can all be follow through marks from an incorrect figure chosen from the table.
Total marks for question			**4**		

Question	Skills Standard	Process	Mark	Mark Grid	Evidence
Q9	R1	Begins process to find figures to compare	1 or	N	e.g. 549 ÷ 44 (=12.4..) oe **OR** 9.7 ÷ 3.2 (=3.0..) **OR** 44 ÷ 3.2 (=13.75) **OR** 549 ÷ 9.7 (=56.5..) oe **OR** 549 ÷ 4 (=137.25)
	A4	Develops process	2 or	NP	e.g. 549 ÷ 44 (=12.4..) **and** 9.7 ÷ 3.2 (=3.0..) **OR** '13.75' × 9.7 (=133.3..) **OR** '56.5..' × 3.2 (=181.1..) **OR** 549 ÷ 4 (=137.25) **and** 44 ÷ 3.2 (=13.75)
	A4	Full process to find figures to compare	3 or	NPQ	e.g. '3.0..' ÷ '12.4..' (=0.24..) **OR** '133.3..' × 4 (=533.5) **OR** '181.1..' ÷ 4 (=45.2..) **OR** 549 ÷ 4 (=137.25) **and** 44 ÷ 3.2 × 9.7 (=133.33..) oe
	I7	Correct decision based on accurate figures	4	NPQR	e.g. No/Yes **AND** [0.24, 0.25] oe **OR** No **AND** 533.5(p) **OR** No/Yes **AND** 45(.2..) (miles) **OR** No/Yes **AND** 133(.3..) (p) **and** 137(.2..) (p)
Total marks for question	**4**				

Ofqual

Llywodraeth Cynulliad Cymru
Welsh Assembly Government

CCEA
Rewarding Learning