PEARSON EDEXCEL FUNCTIONAL SKILLS MATHEMATICS
MARK SCHEME – LEVEL 2 SET 8

Marking Guidance for Functional Skills Mathematics Level 2

General

- All learners must receive the same treatment. Examiners must mark the first learner in exactly the same way as they mark the last.
- Where some judgement is required, mark schemes will provide the principles by which marks will be awarded; exemplification will not be exhaustive. When examiners are in doubt regarding the application of the mark scheme, the response should be escalated to a senior examiner to review.
- Mark schemes should be applied positively. Learners 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. 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 learner's response is not worthy of credit according to the mark scheme. If there is a wrong answer (or no answer) indicated in the answer box, always check the working in the body of the script (and on any diagrams) and award any marks appropriate from the mark scheme.
- Working is always expected. For short questions, where working may not be seen, correct answers may still be awarded full marks. For longer questions, an answer in brackets from the mark scheme seen in the body of the working, implies a correct process and the appropriate marks may be awarded.
- **Questions that specifically state that working is required**: learners who do not show working will get no marks – full details will be given in the mark scheme for each individual question.

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 learner uses to reach an answer. The evidence column shows the *most likely* examples that will be seen. If the learner gives different evidence valid for the process, examiners should award the mark(s).
- If working **is crossed out and still legible**, then it should be marked, as long as it has not been replaced by alternative work.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 work 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**, e.g. 528 instead of 523, may still gain process marks provided the question has not been simplified. Examiners should send any instance of a suspected misread to a senior examiner to review.
- It may be appropriate to **ignore subsequent work (isw)** when the learner's additional work does not change the meaning of their answer.

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MARK SCHEME – LEVEL 2 SET 8

- **Correct** working followed by an **incorrect decision** may be seen, showing that the learner 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 learner presents a correct answer in working and writes it incorrectly on the answer box e.g. 698 in the body and 689 in the answer box; mark the better answer if clearly only a transcription error. Examiners should send any instance of transcriptions errors to a senior examiner to review.
- **Incorrect method** if it is clear from the working that the correct answer has been obtained from incorrect working, award 0 marks. Examiners must escalate the response to a senior examiner to review.
- **Follow through marks (ft)** must only be awarded when explicitly allowed in the mark scheme. Where the process uses the learner'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 coming from a correct or set of correct processes.
  - When words are used in { } then this value does not need to come from a correct process but should be the value the learner believes to be required. The constraints on this value will be detailed in the mark scheme. For example, {volume} means the figure may not come from a correct process but is clearly the value learners believe should be used as the volume.
- Marks can usually be awarded where units are not shown. Where units are required this will be stated. For example, 5(m) indicates that the units do not have to be stated for the mark to be awarded.
- Learners 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, when a range of answers is given e.g. [12.5, 13] this is the inclusive closed interval.
- **Accuracy** of figures. Accept an answer which has been rounded or truncated from the correct figure unless other guidance is given. For example, for 12.66.. accept 12.6, 12.7, 12.66, 12.67 or any other more accurate figure.
- **Probability** answers must be given as a fraction, percentage or decimal. If a learner gives a decimal equivalent to a probability, this should be written to at least 2 decimal places (unless tenths). If a learner gives the answer as a percentage a % must be used. Incorrect notation should lose the accuracy marks but be awarded any implied process marks. If a probability fraction is given then cancelled incorrectly, ignore the incorrectly cancelled answer.
- **Graphs.** 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. The minimum requirements will be given, but examiners should give credit if a title is given which makes the label obvious.

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MARK SCHEME – LEVEL 2 SET 8

Section A (Non-Calculator)

PMAT2/N08				
Question	**Process**	**Mark**	**Mark Grid**	**Evidence**
Q1	Begins to work with costs	1 or	A	e.g. 2.85 + 0.79 + 1.59 (=5.23) **or** 2 . 8 5 + 0 . 7 9 1 . 5 9 (5 . 2 3)
	Full process to find amount saved must show borrowing or at least 2 correct figures	2 or	AB	e.g. – $^{4}\cancel{5}$. $^{11}\cancel{2}$ $^{1}3$ 3 . 9 9 (1 . 2 4) **or** – 5 . 2 3 3 . 9 9 (1 .) 2 4
	Accurate figure	3	ABC	1.24 NB This question requires working shown
	Total marks for question	**3**		

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MARK SCHEME – LEVEL 2 SET 8

Question	Process	Mark	Mark Grid	Evidence
Q2	Begins process to divide 74.88 by 1.2	1 or	A	e.g. 748.8 ÷ 12 **OR** digits 62 identified
	Accurate digits	2 or	AB	digits 624 identified
	Accurate figure	3	ABC	62.4 NB This question requires working shown
	Total marks for question	**3**		

Question	Process	Mark	Mark Grid	Evidence
Q3(a)	Begins to work with angles	1 or	A	360 – 108 – 49 (= 203) **OR** 108 ÷ 2 (= 54) **and** 49 ÷ 2 (= 24.5) **OR** (180 – 108) ÷ 2 (=36) oe **or** (180 – 49) ÷ 2 (= 65.5) oe
	Full process to work with angles	2 or	AB	(360 – 108 – 49) ÷ 2 (= 101.5) oe **OR** 180 – (108 ÷ 2) – (49 ÷ 2) (= 101.5) oe **OR** '36' + '65.5' (= 101.5) oe
	Accurate figure	3	ABC	101.5
Q3(b)	Valid check by estimation	1	D	e.g. (360 – 110 – 50) ÷ 2 = 100
	Total marks for question	**4**		

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MARK SCHEME – LEVEL 2 SET 8

Question	Process	Mark	Mark Grid	Evidence
Q4	Process to find missing length	1	A	e.g. 2.6 – 1.8 (= 0.8) May be seen in subsequent calculations
	Begins process to find area	1 or	B	e.g. 1.8 × 3 (= 5.4) **OR** '0.8' × 3 ÷ 2 (= 1.2) **OR** 0.5 × (1.8 + 2.6) (= 2.2) **OR** 2.6 × 3 (= 7.8)
	Develops solution	2 or	BC	e.g. 1.8 × 3 (=5.4) **and** '0.8' × 3 ÷ 2 (= 1.2) **OR** 0.5 × (1.8 + 2.6) × 3 (= 6.6) **OR** 2.6 × 3 (= 7.8) **and** '0.8' × 3 ÷ 2 (= 1.2)
	Full process to find total required area or total number of packs	3	BCD	e.g. '6.6' + '6.6' + 8.8 (= 22) **OR** 2 × ('7.8' – '1.2') + 8.8 (22) '6' + '6' + '8' (= 20)
	Process to work with number of packs	1 or	E	e.g. '22' ÷ 1.1 (= 20) **OR** 8.8 ÷ 1.1 (= 8) **or** '6.6' ÷ 1.1 (= 6) **or** {area} ÷ 1.1
	Accurate figure	2	EF	20
	Total marks for question	**6**		

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MARK SCHEME – LEVEL 2 SET 8

Section B (Calculator)

PMAT2/C08				
Question	**Process**	**Mark**	**Mark Grid**	**Evidence**
Q1(a)	Accurate figure	1	A	$\frac{5}{25}$ oe
Q1(b)	Process to work with probability	1 or	B	$\frac{9}{a}$ $a > 9$ **or** $\frac{b}{25}$ $0 < b < 25$ where a and b are integers
	Accurate figure	2	BC	$\frac{9}{25}$ oe
	Total marks for question	**3**		

Question	**Process**	**Mark**	**Mark Grid**	**Evidence**
Q2	Begins to work with ratio	1 or	A	e.g. 650 ÷ (4 + 9) (= 50) **OR** 425 ÷ 9 (= 47.22..) **OR** (4 + 9) ÷ 9 (= 1.44..) **or** 9 ÷ (4 + 9) (= 0.69..)
	Full process to work with ratio	2 or	AB	e.g. '50' × 9 (= 450) **OR** 425 ÷ '0.69..' (= 613.88..) **or** 650 × '0.69..' (= 450) **OR** 650 ÷ '1.44..' (= 450) **or** 425 × '1.44..' (= 613.88..) **OR** 425 ÷ 9 × (4 + 9) (= 613.88..) **or** (425 ÷ 9 × 4) + 425 (= 613.88..)
	Valid decision with accurate figures. Allow follow through from early functional rounding or truncating	3	ABC	e.g. No **AND** 450(g of flour needed) **OR** No **AND** 613(.88..) (g of pastry can be made) **OR** (No **AND**) 25g short
	Total marks for question	**3**		

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PEARSON EDEXCEL FUNCTIONAL SKILLS MATHEMATICS
MARK SCHEME – LEVEL 2 SET 8

Question	Process	Mark	Mark Grid	Evidence
Q3	Converts between fl oz and ml	1	A	e.g. 10.5 × 28.413 (= 298.3365) **or** '26.25' × 28.413 (= 745.84..)
	Begins to work with proportion	1 or	B	e.g. '298.3365' ÷ 12 (= 24.861..) **OR** 10.5 ÷ 12 (= 0.875) **OR** 30 ÷ 12 (= 2.5)
	Full process to work with proportion	2 or	BC	e.g. '24.861..' × 30 (= 745.84..) **OR** '0.875' × 30 (= 26.25) **OR** '298.3365' × '2.5' (= 745.84..) **OR** '2.5' × 10.5 (= 26.25)
	Accurate integer figure from functional rounding	3	BCD	e.g. 746 **OR** 745 **or** 750 supported
	Total marks for question	**4**		

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PEARSON EDEXCEL FUNCTIONAL SKILLS MATHEMATICS
MARK SCHEME – LEVEL 2 SET 8

Question	Process	Mark	Mark Grid	Evidence
Q4	Begins to draw scatter diagram	1 or	A	1 of: linear scale Accurate plotting of at least 4 data points Correct labels
	Develops solution	2 or	AB	2 of: linear scale Accurate plotting of at least 4 data points Correct labels
	Fully correct scatter diagram	3	ABC	All of: Sensible linear scale Accurate plotting of all data points Correct labels ((number of new) customers **and** £ **or** money (spent))
	Total marks for question	**3**		

Money spent (£)	80	100	150	125	175	250	290	325
Number of new customers	4	7	8	9	12	16	18	23

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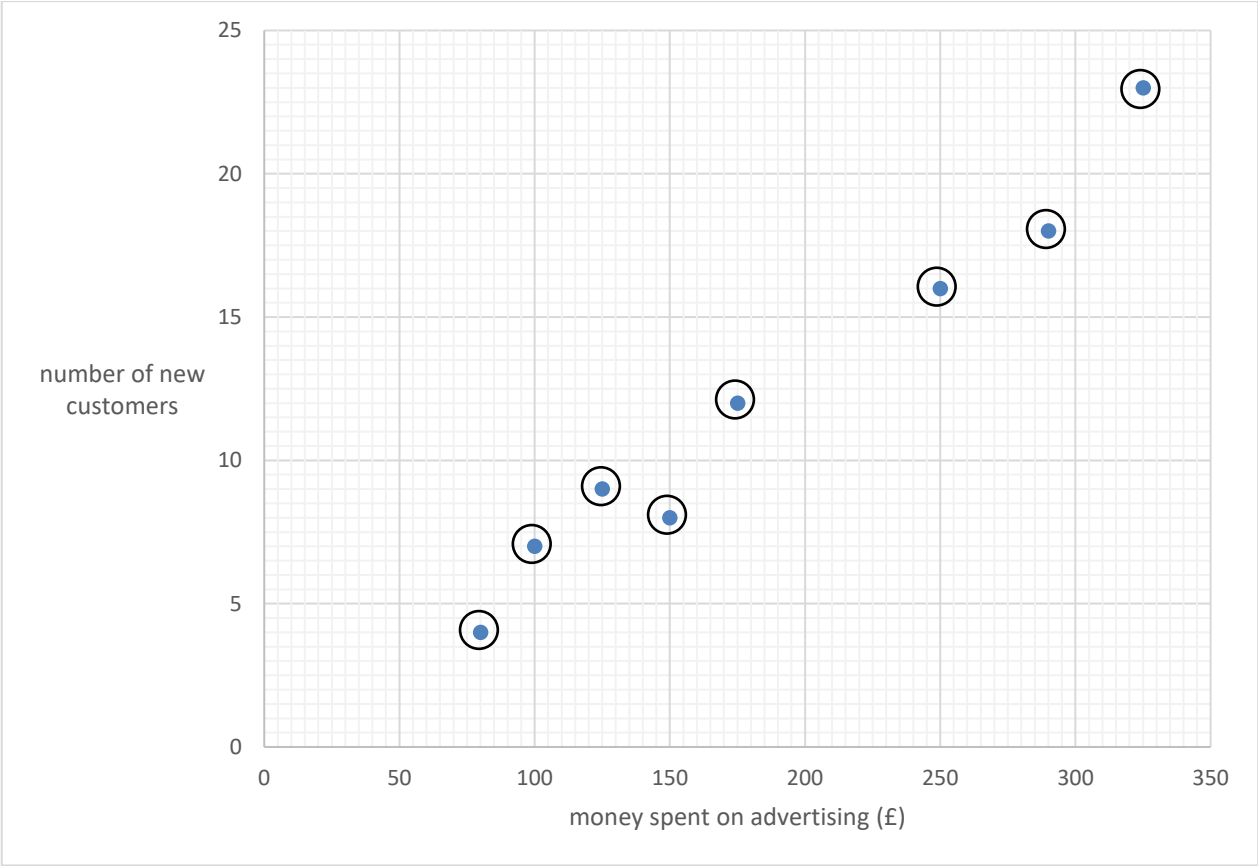
MARK SCHEME – LEVEL 2 SET 8



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MARK SCHEME – LEVEL 2 SET 8

Question	Process	Mark	Mark Grid	Evidence
Q5	Process to convert units	1	A	e.g. 67×2.54 (= 170.18) May be seen in subsequent calculations
	Begins to work with formula	1 or	B	{converted height}^{2} (= 2.896..) **OR** e.g. 73.3 ÷ '1.7018'^{2}
	Full process to work with formula	2	BC	73.3 ÷ '2.896..' (= 25.309..)
	Full process to work with mean	1 or	D	e,g, (24.8 + 27.1 + 25.7 + 28.3 + 26.4 + 25.2 + 27.6 + '25.309..') ÷ 8 (= 26.301...) **OR** (24.8 + 27.1 + 25.7 + 28.3 + 26.4 + 25.2 + 27.6 + {BMI}) ÷ 8 NB {BMI}requires A or B awarded
	Valid comparison with accurate figures	2	DE	e.g. The mean BMI for Misha's rowing team is 26.3(01..) which is lower than the mean BMI for women in the UK
	Total marks for question	**5**		

Question	Process	Mark	Mark Grid	Evidence
Q6(a)	Accurate figure	1	A	3675000
Q6(b)	Expresses amount as a fraction	1 or	B	eg $\frac{760}{1000}$ oe
	Accurate fraction in simplest form	2	BC	$\frac{19}{25}$
	Total marks for question	**3**		

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PEARSON EDEXCEL FUNCTIONAL SKILLS MATHEMATICS
MARK SCHEME – LEVEL 2 SET 8

Question	Process	Mark	Mark Grid	Evidence
Q7	Process to work with time conversion	1	A	e.g. 3hrs 44 mins = 224 mins **OR** 44 ÷ 60 (= 0.73..)
	Begins to work with reverse percentage	1 or	B	e.g. (100 + 28) ÷ 100 (= 1.28) **OR** $(1 + \frac{28}{100}) \times$ original time = 3hrs 44 mins **OR** 3hrs 44 mins = 128% **OR** '224' ÷ 128 (= 1.75) oe **OR** 100 ÷ 128 (= 0.78125)
	Complete process to find original time	2 or	BC	e.g. '224' ÷ '1.28' (= 175) **OR** '1.75' × 100 (= 175) **OR** '0.78125' × '224' (= 175)
	Accurate figure with units	3	BCD	e.g. 175 mins **or** 2 hours 55 minutes **or** 2.9(67..) hours
	Total marks for question	**4**		

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PEARSON EDEXCEL FUNCTIONAL SKILLS MATHEMATICS
MARK SCHEME – LEVEL 2 SET 8

Question	Process	Mark	Mark Grid	Evidence
Q8(a)	Process to use consistent units	1	A	e.g. 0.6(m) **or** 0.1(m) **or** 3600(mm) May be seen in subsequent calculations
	Process to find a missing length	1 or	B	e.g. 600 + 100 (= 700) **or** '0.6' + '0.1' (= 0.7) **OR** 3.6 – '0.6' – '0.6' (= 2.4) **or** 4.5 – '0.6' (= 3.9) **OR** 3.6 – '0.1' – '0.1' (= 3.4) **or** 4.5 – '0.1' (= 4.4)
	Full process to find both missing lengths	2	BC	3.6 − '0.7' – '0.7' (= 2.2) **and** 4.5 – '0.7' (= 3.8) oe
	Process to find area to have heating cable	1 or	D	e.g. '2.2' × '3.8' (= 8.36) **OR** {length} × {width} Provided B has been awarded
	Accurate figure with supportive working	2	DE	8.36 **and** 179.99 NB This question requires working shown
Q8(b)	Valid check using reverse calculation	1	F	e.g. 8.36 ÷ 3.8 = 2.2
	Total marks for question	**6**		

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PEARSON EDEXCEL FUNCTIONAL SKILLS MATHEMATICS
MARK SCHEME – LEVEL 2 SET 8

Question	Process	Mark	Mark Grid	Evidence
Q9	Interprets plan or front elevation	1 or	A	e.g. labels 3 and 8 on diagram **OR** uses 3 and 8 in subsequent calculations **OR** $3^2 \times 3.14$ (= 28.26)
	Full process to find volume	2 or	AB	$3.14 \times$ '$3'^2 \times 8$ (= 226.08)
	Accurate figure	3	ABC	226(.08) Accept accurate figures using 3.14 or better
	Total marks for question	**3**		

Question	Process	Mark	Mark Grid	Evidence
Q10(a)	Accurate mixed number	1	A	$2\frac{1}{7}$
Q10(b)	Full process to find median	1 or	B	e.g. −5, −3, 0, 4, 4, 6 **and** (0 + 4) ÷ 2 (= 2) Ordering can be implied by correct process
	Accurate figure	2	BC	2
	Total marks for question	**3**		

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PEARSON EDEXCEL FUNCTIONAL SKILLS MATHEMATICS
MARK SCHEME – LEVEL 2 SET 8

Question	Process	Mark	Mark Grid	Evidence
Q11(a)	Accurate figure	1	A	0.28
Q11(b)	Process to use currency conversion factor	1	B	e.g. 38.9 ÷ 1.127 (= 34.516..) **OR** '39.969..' ÷ 1.127 (= 35.465..) **OR** '1.069..' ÷ 1.127 (= 0.949…)
	Begins to work with percentage	1 or	C	e.g. {converted figure} ÷ 100 × 2.75 (= 0.949..) **OR** 38.9 ÷ 100 × 2.75 (= 1.069..) **OR** (100 + 2.75) ÷ 100 (= 1.0275)
	Full process to work with percentage increase	2	CD	e.g. {converted figure} + '0.949..' (= 35.465..) **OR** 38.9 + '1.069..' (= 39.969..)
	Accurate figure from functional rounding	1	E	e.g. 35.46 **or** 35.47 **or** 35.45 NB award BCD if this mark is awarded
	Total marks for question	**5**		

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PEARSON EDEXCEL FUNCTIONAL SKILLS MATHEMATICS
MARK SCHEME – LEVEL 2 SET 8

Question	Process	Mark	Mark Grid	Evidence
Q12(a)	Begins to work with time or rate of pay	1 or	A	e.g. 7.5 × 8.7 (= 65.25) **OR** 8.7 ÷ 2 × 3 (= 13.05) **OR** 7.5 × 1.5 (= 11.25) **OR** 100 ÷ 7.5 (= 13.33..)
	Full process to find figures to compare	2 or	AB	e.g. '65.25' ÷ 2 × 3 (= 97.875) **OR** '13.05' × 7.5 (= 97.875) **OR** '11.25' × 8.7 (= 97.875) **OR** 8.7 ÷ 2 × 3 (= 13.05) **and** 100 ÷ 7.5 (= 13.33..) **OR** '13.33..' ÷ 3 × 2 (= 8.88..)
	Valid decision with accurate figure	3	ABC	e.g. No **AND** (£)97(.875) **OR** No **AND** (£)13.0(5) **and** (£)13.3(33..) **OR** No **AND** (£)8.8(8..) (per hour)
Q12(b)	Begins to work with range for one person	1 or	D	e.g. 283.94 – 186.32 (= 97.62) **or** 308.71 – 126.4 (= 182.31) **OR** 186.32 to 283.94 **or** 126.4 to 308.71
	Full process to find figures to compare	2 or	DE	e.g. 283.94 – 186.32 (= 97.62) **and** 308.71 – 126.4 (= 182.31) **OR** 308.71 – '97.62' (= 211.09) **or** 283.94 – '182.31' (= 101.63) **OR** 186.32 + '182.31' (= 368.63) **or** 126.4 + '97.62' (= 224.02)
	Valid decision with accurate figures	3	DEF	e.g. Yes **AND** (£)97.62 (is less than) (£)182.31 **OR** Yes **AND** Mina's lowest wage would need to be greater than (£)211.09 **OR** Yes **AND** Bilal's highest wage would need to be greater than (£)368.63
	Total marks for question	**6**		

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