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

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- If working **is crossed out and still legible**, then it should be marked, as long as it has not been replaced by alternative work.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

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- **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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Section A (Non-Calculator)

PMAT2/N02				
Question	**Process**	**Mark**	**Mark Grid**	**Evidence**
Q1(a)	Process to follow order of precedence of operators	1 or	A	700 – (7 × 7) (=651) **OR** 7 × 7 = 49
	Accurate figure	2	AB	651
Q1(b)	Accurate figure	1	C	43
	Total marks for question	**3**		

Question	**Process**	**Mark**	**Mark Grid**	**Evidence**
Q2	Works with common denominator to add the fractions	1 or	A	e.g. $\frac{1}{4} + \frac{3}{8} = \frac{2+3}{8}$ oe
	Full process to add fractions to solve the problem	2 or	AB	e.g. $1 + 2 + \frac{2+3}{8}$ $(= 3\frac{5}{8})$ Allow 1.25 + 2.375 (=3.625)
	Accurate figure given as a mixed number	3	ABC	$3\frac{5}{8}$ oe NB working must be shown
	Total marks for question	**3**		

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Question	Process	Mark	Mark Grid	Evidence
Q3(a)	Process to work with ratio	1	A	e.g. 32 ÷ 16 × 4 (=8) **OR** 8 : 2 : 32 **OR** '905.6' ÷ 16 × 4 (=226.4)
	Process to convert between oz and grams	1	B	e.g. '8' × 28.3 (=226.4) **OR** 32 × 28.3 (=905.6)
	Accurate figure	1	C	226(.4) Accept 227
Q3(b)	Valid check using estimation	1	D	e.g. 30 × 8 = 240
	Total marks for question	**4**		

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Question	Process	Mark	Mark Grid	Evidence
Q4	Process to find the area of triangle	1 or	A	(1 × 3) ÷ 2 (=1.5)
	Full process to find the volume	2	AB	'1.5' × 4 (=6)
	Process to begin to work with compound measures	1 or	C	{volume} × 19 (=114) **OR** 19 × 40 (=760)
	Full process to work with compound measures	2 or	CD	'114' × 40 (=4560) **OR** '760' × {volume} (=4560)
	Full process to find the total price	3 or	CDE	'4560' + 382 (=4942)
	Accurate figure	4	CDEF	4942
	Total marks for question	**6**		

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Section B (Calculator)

PMAT2/C02				
Question	**Process**	**Mark**	**Mark Grid**	**Evidence**
Q1	Process to find total coins for one building	1 or	A	e.g. (24 ÷ 8) × 135 (=405) **OR** 24 × (60 ÷ 15) × 36 (=3456)
	Full process to find figures to compare	2 or	AB	e.g. '405' + '3456' (= 3861) **OR** 4000 – '405' (=3595) **and** '3456' **OR** 4000 – '3456' (=544) **and** '405'
	Valid decision with accurate figures	3	ABC	No **AND** 3861 **OR** No **AND** 3595 **and** 3456 **OR** No **AND** 544 **and** 405
	Total marks for question	**3**		

Question	**Process**	**Mark**	**Mark Grid**	**Evidence**
Q2(a)	Describes the relationship	1	A	e.g. positive correlation or The older the tree the greater the height
Q2(b)	Draws a line of best fit	1	B	Acceptable line drawn
Q2(c)	Estimates age	1	C	[22,23] Ft their line of best fit
	Total marks for question	**3**		

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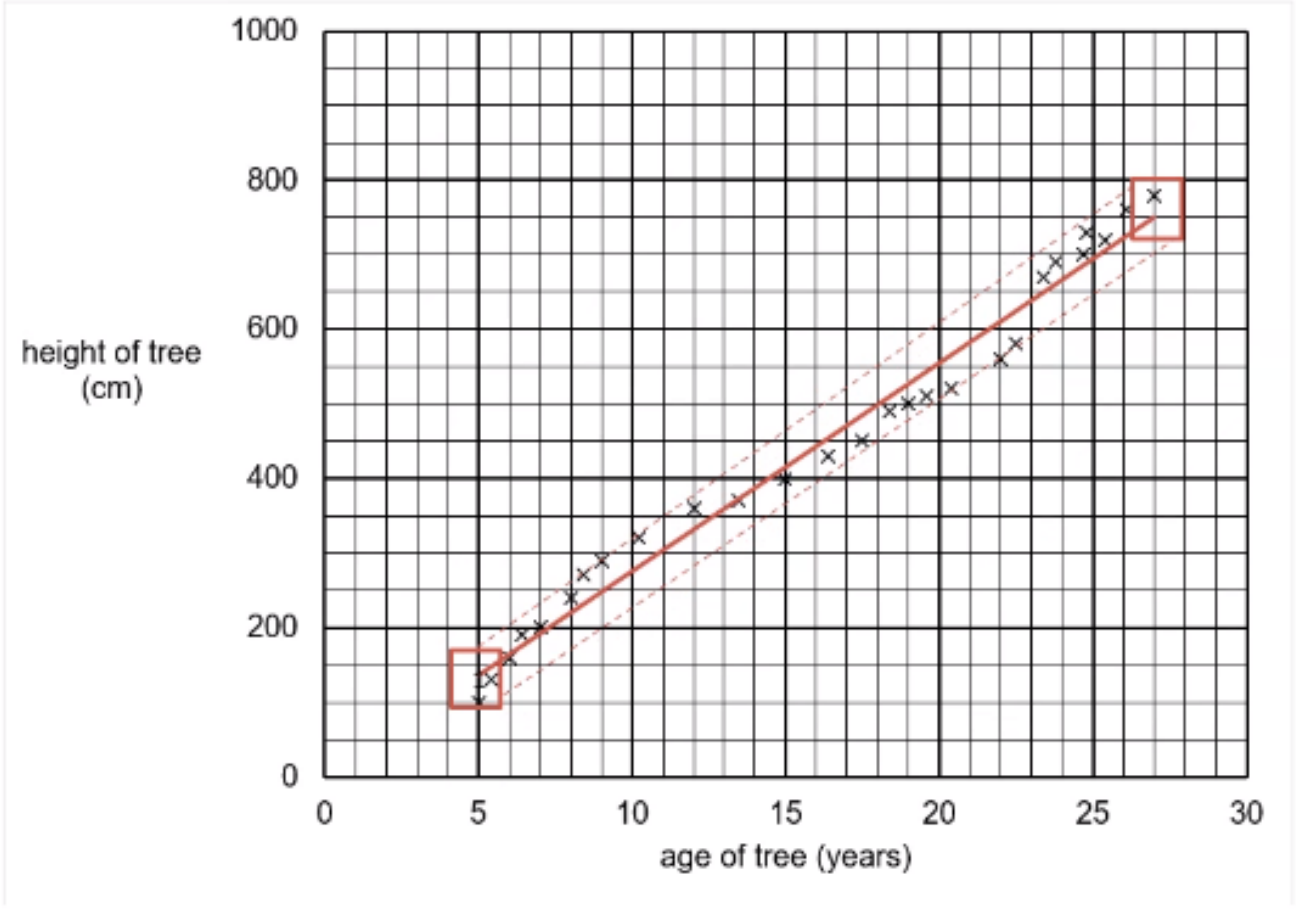

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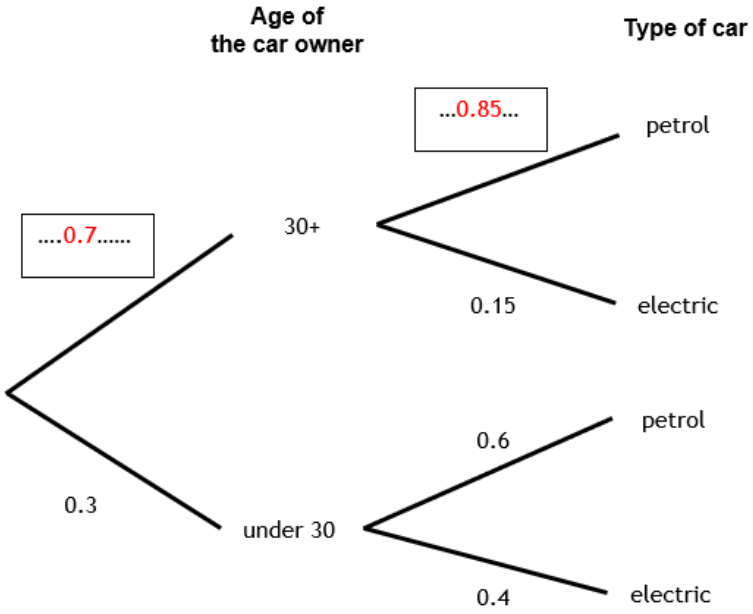
Question	Process	Mark	Mark Grid	Evidence
Q3(a)	Begins to complete the tree diagram Fully completes tree diagram	1 or 2	A AB	Completes one of the missing probabilities Completes both missing probabilities, i.e. 
Q3(b)	Begins to work with probability Accurate figure	1 or 2	C CD	0.3 × 0.4 (=0.12) 0.12 oe
Total marks for question		**4**		

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Question	Process	Mark	Mark Grid	Evidence
Q4	Process to begin to work with proportion	1 or	A	390 ÷ 15 (=26) **OR** 1200 ÷ 390 (=3.07..)
	Full process to work with proportion	2 or	AB	1200 ÷ '26' (=46.15..) **OR** '3.07..' × 15 (=46.15..)
	Accurate figure	3	ABC	47
	Total marks for question	**3**		

Question	Process	Mark	Mark Grid	Evidence
Q5(a)	Process to find the median	1	A	(42.5 + 45.1) ÷ 2 (=43.8) Allow working with thousands or decimals throughout
	Begins to work with percentage change	1 or	B	'49.3' – {median} (=5.5)
	Full process to find the percentage change	2 or	BC	'5.5' ÷ '49.3' × 100 (=11.156..)
	Accurate figure to 2 dp	3	BCD	11.16 (%)
Q5(b)	Valid check of median	1	E	e.g. 43.8 × 2 = 87.6 **and** 87.6 – 45.1 = 42.5 **OR** (40 + 50) ÷ 2 (=45)
	Total marks for question	**5**		

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Question	Process	Mark	Mark Grid	Evidence
Q6	Begins to work with compound interest	1 or	A	e.g. 1.015^3 (= 1.0456..) **OR** 4500 × 1.015 (=4567.5) oe
	Full process to find the amount of investment after 3 years	2 or	AB	e.g. 4500 × 1.015^3 (= 4705.55..) oe **OR** 4567.5 **and** 4636.0125 **and** 4705.55..
	Valid decision with accurate figures	3	ABC	Yes **AND** (£)4705(.55..)
	Total marks for question	**3**		

Question	Process	Mark	Mark Grid	Evidence
Q7(a)	Accurate figure	1	A	0.219
Q7(b)	Full process to find the percentage	1 or	B	37 ÷ 100 × 4618.57 (=1708.8709)
	Accurate figure to 1 dp	2	BC	1708.9
Q7(c)	Accurate figure	1	D	51 049 112
	Total marks for question	**4**		

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Question	Process	Mark	Mark Grid	Evidence
Q8	Process to find area of a circle	1 or	A	$\pi \times 2.6^2$ (=21.23..)
	Process to find area of quadrant or circle and rectangle	2 or	AB	$(\pi \times 2.6^2) \div 4$ (=5.309..) **OR** $\pi \times 2.6^2$ (=21.23..) **and** 5.3 × 2.6 (=13.78)
	Full process to find total area	3	ABC	'5.309..' + 5.3 × 2.6 (=19.08..) oe Accept use of 5.3066
	Process to find the number of tins	1 or	D	{area} ÷ 6 (=3.18..)
	Full process to find figures to compare	2 or	DE	'4' × 5.41 (=21.64) **OR** 25 ÷ 5.41 (=4.62..) **and** '3.18..' rounded up to a whole number **OR** 25 ÷ '4' (=6.25) '4' must come from rounding their figure up to a whole number
	Valid decision with accurate figures	3	DEF	Yes **AND** (£)21.64 **OR** Yes **AND** 4 (tins) (from two correct processes) **OR** Yes **AND** (£)6.25 (per tin) NB Use of 3.14 for pi is acceptable throughout this question
	Total marks for question	**6**		

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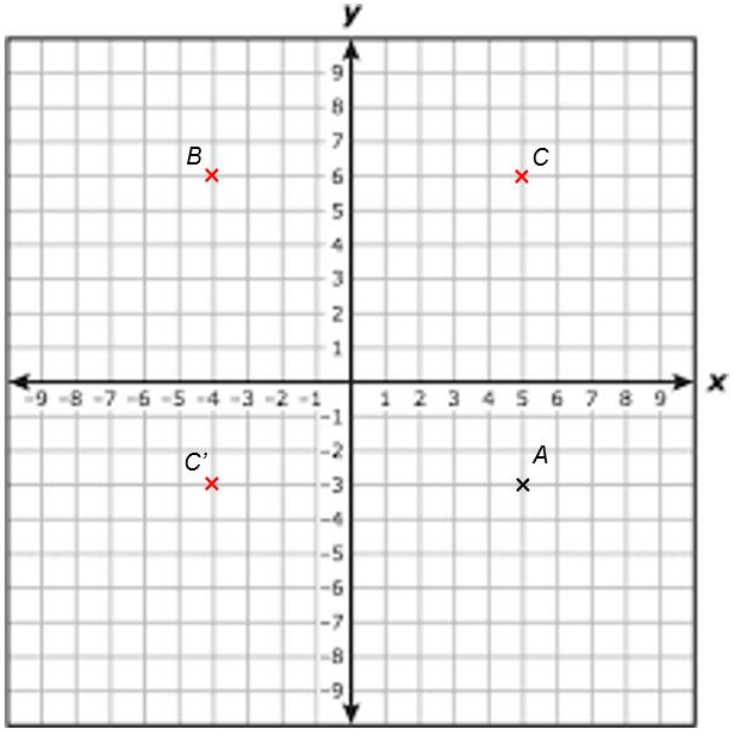
Question	Process	Mark	Mark Grid	Evidence
Q9(a)	Correct answer	1	A	(5, − 3)
Q9(b)	Correct plotting	1	B	Point plotted at (−4, 6)
Q9(c)	Correct plotting	1	C	Point plotted at (5, 6) or (−4, − 3)
	Total marks for question	**3**		

Example answers



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Question	Process	Mark	Mark Grid	Evidence
Q10	Begins to work with the problem	1 or	A	e.g. (100 – 27) ÷ 100 (=0.73) **OR** (9000 – 7346) ÷ 9000 (=0.183..)
	Full process to find figures to compare	2 or	AB	e.g. 7346 ÷ '0.73' (=10063.01..) **OR** 9000 × '0.73' (=6570) **OR** (9000 – 7346) ÷ 9000 × 100 (=18.37..)
	Valid decision with accurate figures	3	ABC	e.g. Yes **AND** (£)10063(.01..) **OR** Yes **AND** (£)6570 **OR** Yes **AND** 18(.37..) (%)
	Total marks for question	**3**		

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Question	Process	Mark	Mark Grid	Evidence
Q11(a)	Process to multiply a consistent value of number of workers by frequency	1 or	A	e.g. 9 × 10.5 or 8 × 30.5 or 2 × 50.5 or 1 × 70.5 Allow use of 'midpoints' provided they are consistent and within an interval including the end points **OR** 94.5 **and** 244 **and** 101 **and** 70.5 seen (condone 1 error or omission)
	Full process to find the estimate of the mean	2 or	AB	(9 × 10.5 + 8 × 30.5 + 2 × 50.5 + 1 × 70.5) ÷ (9 + 8 + 2 + 1) (=25.5) **OR** (9 × 10.5 + 8 × 30.5 + 2 × 50.5 + 1 × 70.5) (=510) **and** 30 × 20 (=600) Allow use of 'midpoints' provided they are consistent and within an interval including the end points
	Valid decision with accurate figure	3	ABC	No **AND** 25.5 **OR** No **AND** 510 **and** 600 Accept 26 from correct working
Q11(b)	Full process to find percentage	1 or	D	49 ÷ 200 × 100 (=24.5) oe
	Accurate figure	2	DE	24.5
	Total marks for question	**5**		

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Question	Process	Mark	Mark Grid	Evidence
Q12(a)	Process to engage with scale	1	A	e.g. 4.5 × 200 (=900) **OR** '14.13..' × 200 (=2827.43..)
	Process to find the circumference	1 or	B	4.5 × π (=14.13..) **OR** '900' × π (=2827.43..)
	Process to find the number of sets of lights	2 or	BC	'2827.43..' ÷ '475' (=5.95..) oe Accept use of 2826
	Full process to find the total cost	1 or	CD	'6' × 27.99 (=167.94) '6' must come from correct rounding of their number of sets of lights
	Accurate figure	2	DE	167.94 NB Use of 3.14 for pi is acceptable throughout this question
Q12(b)	Correct answer	1	F	Selects third sketch and no other
	Total marks for question	**6**		