

**PEARSON EDEXCEL FUNCTIONAL SKILLS MATHEMATICS  
MARK SCHEME – LEVEL 2 SET 1**

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- If working is **crossed out and still legible**, then it should be marked, as long as it has not been replaced by alternative work.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

Question	Process	Mark	Mark Grid	Evidence
Q1	Begins to work with ratio	1 or	A	e.g. $5500 \div (4 + 3 + 3) (=550)$ oe <b>OR</b> $2000 \div 4 (=500)$
	Full process to find figures to compare	2 or	AB	e.g. $'550' \times 4 (=2200)$ oe <b>OR</b> $5500 \div (4 + 3 + 3) (=550)$ oe <b>AND</b> $2000 \div 4 (=500)$ <b>OR</b> $'500' \times (4 + 3 + 3) (=5000)$
	Valid decision with accurate figures	3	ABC	e.g. Yes <b>AND</b> (£)2200 <b>OR</b> Yes <b>AND</b> (£)550 <b>and</b> (£)500 <b>OR</b> Yes <b>AND</b> (£)5000
<b>Total marks for question</b>		<b>3</b>		

Question	Process	Mark	Mark Grid	Evidence
Q2	Begins to work with formula or total number of words	1 or	A	e.g. $6000 + 5000 (=11\ 000)$ <b>OR</b> $6000 \div 50 (=120)$ <b>or</b> $5000 \div 50 (=100)$
	Full process to find total charge or accurate figure for w/50	2 or	AB	$'11\ 000' \div 50 + 24.99 (=244.99)$ oe <b>OR</b> e.g. 220 seen
	Accurate figure	3	ABC	244.99
<b>Total marks for question</b>		<b>3</b>		

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Question	Process	Mark	Mark Grid	Evidence
<b>Q3</b>	Begins to work with area	1 or	A	e.g. $30 \times 30 (=900)$ <b>OR</b> $80 \times 30 (=2400)$ Do not award if $30 \times 30 \times 80$ is seen as a first step
	Develops solution	2 or	AB	e.g. $30 \times 30 (=900)$ <b>and</b> $80 \times 30 (=2400)$ <b>OR</b> $2 \times '900' (=1800)$ <b>or</b> $4 \times '2400' (=9600)$
	Full process to find the surface area	3 or	ABC	e.g. $2 \times '900' + 4 \times '2400' (=11400)$
	Correct answer with correct units	4	ABCD	$11\,400\text{ cm}^2$ <b>OR</b> $1.14\text{ m}^2$ <b>OR</b> $1\,140\,000\text{ mm}^2$
<b>Total marks for question</b>		<b>4</b>		

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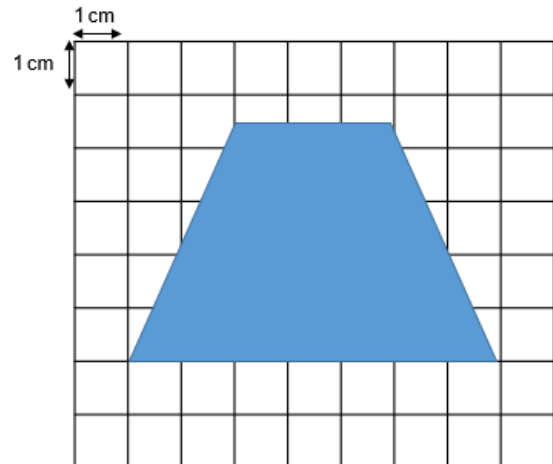
Question	Process	Mark	Mark Grid	Evidence
<b>Q4</b>	Process to convert between fl oz and ml	1	A	e.g. $2 \times 30 (=60)$ <b>OR</b> $300 \div 30 (=10)$
	Process to find number of bottles with offer A	2 or	AB	e.g. $300 \div '60' (=5)$ <b>OR</b> '10' $\div 2 (=5)$ Allow build up method leading to 5 or 6 bottles, e.g. 3 bottles are 180 ml 6 bottles are 360 ml
	Process to find total cost for offer A	3	ABC	e.g. $4 \times 12 (=48)$
	Process to find the discount for offer B	1 or	D	$76 \div 4 (=19)$
	Full process to find a comparable figure from offer B	2	DE	$76 \div 4 \times 3 (=57)$ oe
	Valid decision with accurate figures	1	F	Offer A <b>AND</b> (£)48 <b>and</b> (£)57
<b>Total marks for question</b>		<b>6</b>		

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**Section B (Calculator)**

Question	Process	Mark	Mark Grid	Evidence
Q5	Begins to draw front elevation	1 or	A	A rectangle 7 sq lengths by 4.5 sq lengths <b>OR</b> A rectangle 3 sq lengths by 4.5 sq lengths <b>OR</b> A trapezium with 2 of: bottom edge 7 sq lengths, top edge 3 sq lengths, height 4.5 sq lengths, symmetrical
	Improves front elevation	2 or	AB	An isosceles trapezium with 2 of: bottom edge 7 sq lengths, top edge 3 sq lengths, height 4.5 sq lengths <b>OR</b> A trapezium with all of: bottom edge 7 sq lengths, top edge 3 sq lengths, height 4.5 sq lengths <b>OR</b> Fully correct isosceles trapezium in incorrect orientation
	Correct front elevation	3	ABC	An isosceles trapezium with all of: bottom edge 7 sq lengths, top edge 3 sq lengths, height 4.5 sq lengths in correct orientation
<b>Total marks for question</b>		<b>3</b>		

Example of solution for Q5



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Question	Process	Mark	Mark Grid	Evidence
<b>Q6</b>	Begins to work with percentage increase	1 or	A	e.g. $310\,000 - 270\,000 (= 40\,000)$ <b>OR</b> $0.12 \times 270\,000 (=32\,400)$ oe <b>OR</b> $1 + 0.12 (=1.12)$
	Full process to find figures to compare	2 or	AB	e.g. $310\,000 - 270\,000 (=40\,000)$ <b>and</b> $0.12 \times 270\,000 (=32\,400)$ oe <b>OR</b> $1.12 \times 270\,000 (=302\,400)$ oe <b>OR</b> '40 000' $\div 270\,000 \times 100 (=14.81..)$ <b>OR</b> $310\,000 \div '1.12' (=276\,785.71..)$
	Valid decision with accurate figures	3	ABC	e.g. Yes <b>AND</b> 40 000 <b>and</b> 32 400 <b>OR</b> Yes <b>AND</b> 302 400 <b>OR</b> Yes <b>AND</b> 14(.81.. %) <b>OR</b> Yes <b>AND</b> 276 785(.71..)  NB May work with 310 and 270 throughout
<b>Total marks for question</b>		<b>3</b>		

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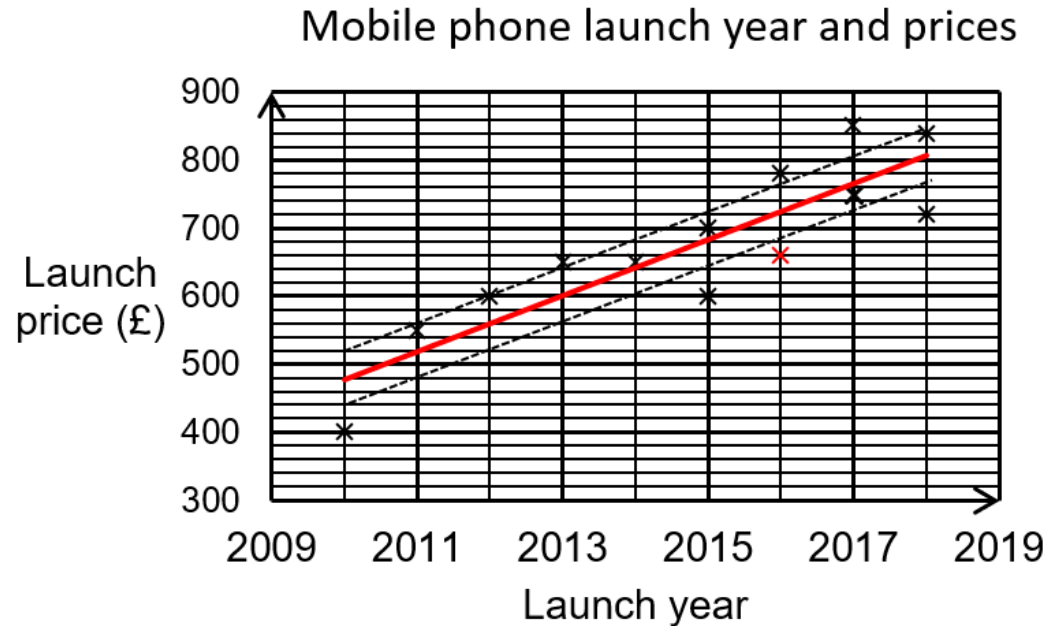
Question	Process	Mark	Mark Grid	Evidence
<b>Q7(a)</b>	Begins to work with mean or total number of points	1 or	A	$10 \times 6 (=60)$ <b>OR</b> $35 + (-6) + 23 + (-17) + 9 (=44)$ <b>OR</b> $16 + 35 + (-6) + 23 + (-17) + 9 (=60)$
	Full process to find figures to compare	2	AB	'60' – '44' <b>OR</b> $10 \times 6 (=60)$ <b>AND</b> $16 + 35 + (-6) + 23 + (-17) + 9 (=60)$ <b>OR</b> '60' $\div$ 6
	Valid decision with accurate figures for a comparison	1	C	Yes <b>AND</b> 16 (from correct working) <b>OR</b> Yes <b>AND</b> 60 <b>and</b> 60 (from two approaches) <b>OR</b> Yes <b>AND</b> 10 (from correct working)
<b>Q7(b)</b>	Valid reverse calculations check	1	D	Valid check, e.g. $16 + 44 = 60$ <b>OR</b> $60 \div 10 = 6$ <b>or</b> $60 \div 6 = 10$
<b>Total marks for question</b>		<b>4</b>		



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Question	Process	Mark	Mark Grid	Evidence
Q8(a)	Correct plotting	1	A	Plots point (2016, 660)
Q8(b)	Correct line of best fit	1	B	Line of best fit placed correctly See guidance boxes on diagram
Q8(c)	Correct description of correlation	1	C	e.g. positive correlation (between launch year and price) <b>OR</b> the newer the phone the higher the price
<b>Total marks for question</b>		<b>3</b>		

Example of solution for Q8(a) and Q8(b)



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Question	Process	Mark	Mark Grid	Evidence
<b>Q9</b>	Process to find a missing length	1	A	e.g. $1.7 - 0.9 (=0.8)$ <b>or</b> $2.2 - 0.6 (=1.6)$
	Process to find one relevant area	1 or	B	e.g. $2.2 \times 0.9 (=1.98)$ <b>OR</b> $'1.6' \times '0.8' \times 0.5 (=0.64)$ oe
	Full process to find the total area of the wall or process to find the amount of paint (coverage with 3 coats) needed for one relevant area	2	BC	e.g. $'1.98' + '0.64' (=2.62)$ <b>OR</b> $'1.98' \times 3 (=5.94)$ <b>OR</b> $'0.64' \times 3 (=1.92)$
	Full process to find figures to compare	1 or	D	e.g. $\{\text{compound area}\} \times 3 (=7.86)$ <b>OR</b> $8 \div \{\text{compound area}\} (=3.05..)$ <b>OR</b> $8 \div 3 (=2.6..)$ <b>and</b> $'1.98' + '0.64' (=2.62)$
	Valid decision with accurate figures	2	DE	e.g. Yes <b>AND</b> $7(.86)$ (m <sup>2</sup> ) <b>OR</b> Yes <b>AND</b> $3(.05..)$ coats of paint) <b>OR</b> Yes <b>AND</b> $2.66(6..)$ (m <sup>2</sup> ) <b>and</b> $2.62$ (m <sup>2</sup> ) (per 1 coat)
<b>Total marks for question</b>		<b>5</b>		

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Question	Process	Mark	Mark Grid	Evidence
<b>Q10</b>	Process to multiply a consistent value of films by frequency	1 or	A	e.g. 2 of $8 \times 6$ <b>or</b> $23 \times 15$ <b>or</b> $38 \times 14$ <b>or</b> $53 \times 11$ <b>or</b> $68 \times 4$ <b>OR</b> 2 of 48 <b>or</b> 345 <b>or</b> 532 <b>or</b> 583 <b>or</b> 272 seen Allow use of 'midpoints' provided they are consistent and within an interval including the end points
	Full process to find the estimate of the mean	2 or	AB	$(8 \times 6 + 23 \times 15 + 38 \times 14 + 53 \times 11 + 68 \times 4) \div (6 + 15 + 14 + 11 + 4) (=35.6)$ (condone 1 error) Allow use of 'midpoints' provided they are consistent and within an interval including the end points
	Accurate figure	3	ABC	35.6 Accept 35 or 36 supported by accurate working
<b>Total marks for question</b>		<b>3</b>		

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Question	Process	Mark	Mark Grid	Evidence
Q11(a)	Process to find probability of any of the missing events	1 or	A	$1 - \frac{3}{10} (= \frac{7}{10})$ oe or $1 - \frac{4}{5} (= \frac{1}{5})$ oe <b>OR</b> Any one correct probability seen on the diagram.
	Fully correct tree diagram	2	AB	<pre>           graph LR             Root(( )) --- P1[3/10] --- Male[male]             Root --- P2[7/10] --- Female[female]             Male --- P3[4/5] --- M_Passed[passed]             Male --- P4[1/5] --- M_Failed[failed]             Female --- P5[4/5] --- F_Passed[passed]             Female --- P6[1/5] --- F_Failed[failed]           </pre>
Q11(b)	Full process to find combined probability	1 or	C	$\frac{3}{10} \times \frac{4}{5} (= \frac{12}{50})$
	Correct answer	2	CD	$\frac{12}{50}$ oe
<b>Total marks for question</b>		<b>4</b>		

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Question	Process	Mark	Mark Grid	Evidence
<b>Q12</b>	Finds median	1	A	28 500 identified
	Process to work with percentage	1	B	e.g. {median} $\times 60 \div 100$ (=17100) <b>OR</b> 15675 $\div$ {median} $\times 100$ (=55) oe
	Process to find total number of hours worked in a year or difference in percentage or process to find hourly rate.	1	C	35 $\times$ 48 (=1680) <b>OR</b> 60 – ‘55’ (=5) oe <b>OR</b> ‘17100’ $\div$ 48 $\div$ 35 (=10.17..) <b>OR</b> 15675 $\div$ 48 $\div$ 35 (=9.33..)
	Process to find the annual difference between the actual pay and the increased pay or both hourly rates	1 or	D	‘17100’ – 15675 (=1425) <b>OR</b> ‘5’ $\div$ 100 $\times$ {median} (=1425) oe <b>OR</b> 15675 $\div$ ‘1680’ (=9.33..) <b>and</b> ‘17100’ $\div$ ‘1680’ (=10.17..)
	Full process to find hourly rate increase	2	DE	‘1425’ $\div$ ‘1680’ (=0.84..) <b>OR</b> ‘10.17..’ – ‘9.33..’ (=0.84..)
	Accurate figure	1	F	0.84(8..) <b>or</b> 0.85
<b>Total marks for question</b>		<b>6</b>		

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Question	Process	Mark	Mark Grid	Evidence
Q13(a)	Full process to find figures to compare	1 or	A	e.g. $412 \div 650 (=0.63..)$ <b>OR</b> $650 \div 3 \times 2 (=433.33..)$ <b>OR</b> $412 \div 2 \times 3 (=618)$
	Valid decision with accurate figures	2	AB	No <b>AND</b> 0.63(..) ( <b>and</b> 0.66(6..)) oe <b>OR</b> No <b>AND</b> 433(.33..) <b>OR</b> No <b>AND</b> 618
Q13(b)	Valid check	1	C	Valid check, e.g. $433 \div 2 \times 3 = 649.5$ or alternative method
<b>Total marks for question</b>		<b>3</b>		

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Question	Process	Mark	Mark Grid	Evidence
<b>Q14</b>	Begins to work with angles in a triangle or uses angle on a straight line or in a right angle to find missing angle	1 or	A	e.g. $180 - 60 - 35 (=85)$ <b>OR</b> $180 - 60 (=120)$ <b>OR</b> $90 - 35 (=55)$
	Full process to find the size of angle marked y	2 or	AB	e.g. $90 - '85' (=5)$
	Accurate figure	3	ABC	5
<b>Total marks for question</b>		<b>3</b>		

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Question	Process	Mark	Mark Grid	Evidence
<b>Q15</b>	Process to find remaining \$ or equivalent in £	1	A	1200 – 729.20 – 352.80 (=118) Allow use of relevant amounts converted into £
	Process to convert \$ into £	1	B	e.g. '118' × 0.545 (=64.31) <b>OR</b> '114.46' × 0.545 (=62.38) Allow conversion of any relevant amount
	Begin to work with percentage	1 or	C	e.g. '64.31' × 0.03 (=1.9293) oe <b>OR</b> '118' × 0.03 (=3.54) oe <b>OR</b> 1 – 0.03 (=0.97)
	Full process to find the amount after commission in either currency	2 or	CD	e.g. '64.31' × '0.97' (=62.3807) oe <b>OR</b> '118' × '0.97' (=114.46) oe
	Correct answer accurate to 2 dp	3	CDE	62.38 <b>or</b> 62.39 Must be given to 2 dp
<b>Total marks for question</b>		<b>5</b>		



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Question	Process	Mark	Mark Grid	Evidence
<b>Q16</b>	Process to find total area or volume of concrete in one relevant area	1 or	A	e.g. $4 \times 2.7 + 3 \times 1.6$ (=15.6) <b>OR</b> $4 \times 2.7 \times '0.1'$ (=1.08) <b>OR</b> $3 \times 1.6 \times '0.1'$ (=0.48)
	Full process to find total volume of concrete needed	2	AB	e.g. $'15.6' \times '0.1'$ (=1.56) oe
	Process to find the cost of concrete needed or volume of concrete they can afford	1	C	{volume} $\times 74.89$ (=116.82..) <b>OR</b> $'158.25' \div 74.89$ (=2.11..) <b>OR</b> N.B. Allow use of appropriate rounding of 1.56 for volume e.g. $2 \times 74.89$ (=149.78) <b>or</b> $1.6 \times 74.89$ (=119.824)
	Process to find the cost of work	1	D	$3.5 \times 26.50$ (=92.75)
	Full process to find figures to compare	1 or	E	e.g. $'116.82..' + 99 + '92.75'$ (=308.57..) <b>OR</b> $350 - '116.82..' - 99$ (=134.18..) <b>OR</b> $350 - '92.75' - 99$ (=158.25)
	Valid decision with accurate figures	2	EF	e.g. No <b>AND</b> (£)308(.57..) <b>OR</b> No <b>AND</b> (£) 134(.18..) <b>and</b> (£) 92(.75) <b>OR</b> No <b>AND</b> (£)158(.25) <b>and</b> (£)116(.82..) <b>OR</b> No <b>AND</b> 1.5(6 m <sup>3</sup> ) <b>and</b> 2(.11.. m <sup>3</sup> )
<b>Total marks for question</b>		<b>6</b>		