PEARSON EDEXCEL FUNCTIONAL SKILLS MATHEMATICS
MARK SCHEME – LEVEL 2 SET 6

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- If working **is crossed out and still legible**, then it should be marked, as long as it has not been replaced by alternative work.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/N06				
Question	**Process**	**Mark**	**Mark Grid**	**Evidence**
Q1(a)	Begins to work with fraction	1 or	A	0.33.. × 18 (= 6) oe **OR** $1 + \frac{1}{3}$ (= $\frac{4}{3}$) **OR** 25 − 18 (= 7)
	Full process to find figures to compare	2 or	AB	18 + '6' (= 24) **OR** 18 × '$\frac{4}{3}$' (= 24) **OR** 25 − 18 (= 7) **and** 0.33.. × 18 (= 6) **OR** 25 – '6' (= 19) **OR** 25 ÷ '$\frac{4}{3}$' (= 18.75)
	Valid decision and accurate figure	3	ABC	No **AND** 24 **OR** No **AND** 7 **and** 6 **OR** No **AND** 19 **OR** No **AND** 18.75
	Total marks for question	**3**		

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Question	Process	Mark	Mark Grid	Evidence
Q2	Begins to work with formula	1 or	A	e.g. $180 \times (5 - 2)$ (= 540) **OR** $\frac{180\ (5 - 2)}{5}$
	Full process to work with formula	2 or	AB	$(5 - 2) \times 180 \div 5$ (= 108)
	Accurate figure	3	ABC	108
	Total marks for question	**3**		

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Question	Process	Mark	Mark Grid	Evidence
Q3	Intention to add correct distances	1	A	$4\frac{3}{8} + 4\frac{3}{8} + 5\frac{1}{2}$ oe
	Begins to work with fractions	1 or	B	e.g. $\frac{3\times 2}{8}$ $(=\frac{6}{8})$ **or** $\frac{3+3}{8}$ $(=\frac{6}{8})$ **OR** $\frac{35}{8} + \frac{44}{8}$ $(=\frac{79}{8})$ oe **OR** 0.375×2 $(= 0.75)$ **OR** $4 + 4 + 5$ $(= 13)$ **OR** $\frac{1}{2} = \frac{4}{8}$
	Full process to add at least 2 different fractions to solve the problem	2 or	BC	e.g. $4\frac{3}{8} + 5\frac{1}{2} = 9\frac{7}{8}$ oe **OR** $4\frac{3}{8} + 4\frac{3}{8} + 5\frac{4}{8} = 13\frac{10}{8}$ oe **OR** $\frac{35}{8} + \frac{35}{8} + \frac{44}{8} = \frac{114}{8}$ **OR** $4.375 + 4.375 + 5.5 = 14.25$
	Accurate figure given as a mixed number	3	BCD	$14\frac{1}{4}$ oe NB this question requires working to be shown
	Total marks for question	**4**		

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Question	Process	Mark	Mark Grid	Evidence
Q4(a)	Full process to deal with probability	1 or	A	$1 - 0.4 - 0.35$ (= 0.25)
	Accurate figure	2	AB	0.25 oe
Q4(b)	Begins process to complete the table for at least 2 cells	1 or	C	e.g. 200 – 46 – 27 (= 127) **and** 27 – 10 (= 17) May be implied by 2 correct cells
	Fully correct table	2	CD	All of 17, 127, 38, 63
Q4(c)	Begins to work with combined probability	1 or	E	$\frac{8}{a}$ where $a > 8$ **OR** $\frac{b}{46}$ where $b < 46$
	Accurate fraction in its simplest form	2	EF	$\frac{4}{23}$
	Total marks for question	**6**		

	water	tea	coffee	total
office	**17**	**63**	8	88
warehouse	10	64	**38**	112
total	27	**127**	46	200

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Section B (Calculator)

PMAT2/C06				
Question	**Process**	**Mark**	**Mark Grid**	**Evidence**
Q1(a)	Full process to find speed	1 or	A	e.g. 87 ÷ 1.5 (= 58) **OR** 87 ÷ 90 × 60 (= 58) **or** 87 ÷ 3 × 2 (= 58)
	Accurate figure	2	AB	58
Q1(b)	Valid check by reverse calculation	1	C	e.g. 58 × 1.5 = 87 **or** 87 ÷ 58 = 1.5
	Total marks for question	**3**		

Question	**Process**	**Mark**	**Mark Grid**	**Evidence**
Q2(a)	Complete process to find mean number of tries for team A	1 or	A	((0 × 3) + (1 × 7) + (2 × 11) + (3 × 9)) ÷ 30 (= 1.86..) **OR** (0 + 7 + 22 + 27) ÷ 30 (= 1.86..) Allow one product error for mark A
	Accurate figure	2	AB	1.8(6…)
Q2(b)	Selects team A and gives a reason	1	C	e.g. (team) A **AND** the range is lower for team A **OR** A **AND** the range is higher for team B
	Total marks for question	**3**		

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Question	Process	Mark	Mark Grid	Evidence
Q3	Process to work with ratio for adults to pupils	1	A	e.g. 72 ÷ (1 + 5) (= 12) **OR** clearly states 60 pupils
	Begins to work with ratio for pupils	1 or	B	5 × '12' ÷ (1 + 3) (= 15) oe **OR** 72 – {adults} ÷ (1 + 3) **OR** {pupils} ÷ (1 + 3) where {pupils} ≠ 72
	Full process to work with ratio for pupils or at least 2 accurate figures	2 or	BC	'15' × 3 (=45) **OR** 2 from 12 adults **or** 45 year 7 **or** 15 year 8 **OR** All of 12, 45 **and** 15
	Accurate figures allocated correctly	3	BCD	12 adults **AND** 45 year 7 **and** 15 year 8
	Total marks for question	**4**		

Question	Process	Mark	Mark Grid	Evidence
Q4(a)	Begins to work with conversion	1 or	A	14 × 0.3048 (= 4.2672) **OR** 4.2 ÷ 0.3048 (= 13.779..)
	Valid decision with accurate figures	2	AB	Yes **AND** 4.26(7..) **OR** Yes **AND** 13(.779..)
Q4(b)	Valid check by reverse calculation.	1	C	e.g. 4.26 ÷ 0.3048 = 14 **or** 13.7 × 0.3048 = 4.2
	Total marks for question	**3**		

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Question	Process	Mark	Mark Grid	Evidence
Q5	Begins to work with compound interest	1 or	A	4000 × 1.03 (= 4120) oe **OR** 1.03^2 (= 1.0609)
	Full process to work with compound interest for 2 years or full process to find multiplier for total interest	2	AB	4000 × 1.03^2 (= 4243.6) oe **OR** '1.0609 × 1.025 (= 1.0874..)
	Full process to find the value of the investment after 3 years	1 or	C	'4243.6' × 1.025 (= 4349.69) oe **OR** 4000 × '1.0874..' (= 4349.69) Condone (4000 + 2 × 4000 × 3 ÷ 100) × 1.025 (= 4346) oe for this mark only
	Full process to find the outstanding amount	2 or	CD	4500 – '4349.69' (= 150.31)
	Accurate figure	3	CDE	150.31 NB This question requires working to be shown
	Total marks for question	**5**		

Question	Process	Mark	Mark Grid	Evidence
Q6(a)	Accurate coordinates	1	A	(−4, −2)
Q6(b)	Plot a point to form a right angle at C	1	B	e.g. Point at (−4, 3) **or** (1, −2) **or** (−1, −3) **or** (−2, 4) **or** (−5, 1)
Q6(c)	Accurate value	1	C	180
	Total marks for question	**3**		

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Question	Process	Mark	Mark Grid	Evidence
Q7(a)	Full process to find the median	1 or	A	(712 + 744) ÷ 2 (= 728)
	Accurate figure	2	AB	728
Q7(b)	Full process to find 6%	1 or	C	e.g. '750' × 6 ÷ 100 (= 45) oe
	Accurate figure	2	CD	45
	Total marks for question	**4**		

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Question	Process	Mark	Mark Grid	Evidence
Q8	Begins to work with area	1 or	A	e.g. 28 × 5 (= 140) **OR** (28 × 4) ÷ 2 (= 56) **OR** 28 × (5 + 4) (= 252)
	Complete process to find the area of the front of the stable before or after conversion.	2	AB	e.g. (‘140’ + ‘56’) (= 196) (square feet) **OR** ‘252’ – ‘56’ (= 196) (square feet) **OR** ‘13.006..’ + ‘5.202..’ (= 18.208..) (square metres)
	Converts any relevant area from square feet to square metres	1	C	e.g. ‘196’ ÷ 10.764 (= 18.208..) **OR** ‘140’ ÷ 10.764 (= 13.006…) **or** ‘56’ ÷ 10.764 (= 5.202..)
	Process to work with number of tins	1 or	D	e.g. ‘18.208..’ ÷ 7 (= 2.6..litres) **OR** {area in sq metres} ÷ 7 **OR** 7 × 3 (=21) **and ‘**18.208..’
	Process to calculate the cost using the exact number of tins or accurate figure using an unrounded number of tins	2 or	DE	‘3’ × 6.45 (=19.35) ‘3’ must come from rounding up their number of tins **OR** e.g. ‘2.6’ × 6.45 = 16.77
	Accurate figure (to 2dp)	3	DEF	19.35
	Total marks for question	**6**		

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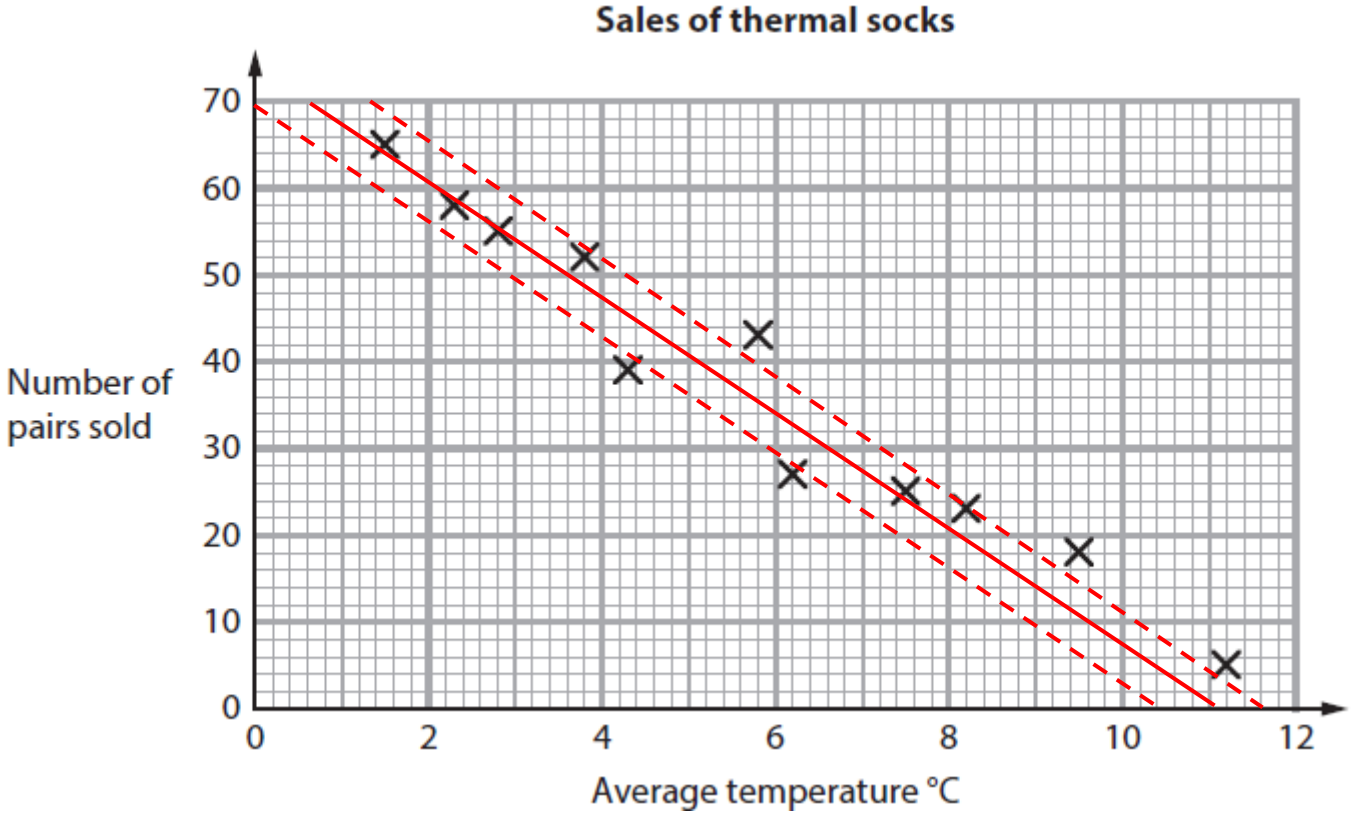
Question	Process	Mark	Mark Grid	Evidence
Q9(a)	Draws a line of best fit	1	A	line of best fit drawn
Q9(b)	Describes correlation	1	B	Negative
Q9(c)	Estimates value	1	C	[35,45] **or** ft their line of best fit provided the gradient is negative
	Total marks for question	**3**		



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Question	Process	Mark	Mark Grid	Evidence
Q10	Begins to work with scale	1 or	A	e.g. Draws a rectangle • 2 sqs by 3 sqs **OR** • 2 sqs by 2.5 sqs **OR** • 2 sqs by *x* sqs **and** longest side against a wall, not covering the door or the window **OR** • *x* sqs by 3 sqs **and** longest side against a wall, not covering the door or the window **OR** • 2 sqs by *x* sqs **and** at least 2 sqs from all other items **and** not against the wall **OR** • *x* sqs by 2.5 sqs **and** at least 2 sqs from all other items **and** not against the wall
	Correct position and space for fridge or table	2 or	AB	Either rectangle with all correct • 2 sqs by 3 sqs, longest side against a wall, not covering the door or the window **OR** • 2 sqs by 2.5 sqs, at least 2 sqs from all other items **and** not against the wall
	Correct position and space for fridge and table labelled	3	ABC	Both rectangles fully correct and labelled. • 2 sqs by 3 sqs, longest side against a wall, not covering the door or the window **AND** • 2 sqs by 2.5 sqs, at least 2 sqs from all other items **and** not against the wall
	Total marks for question	**3**		

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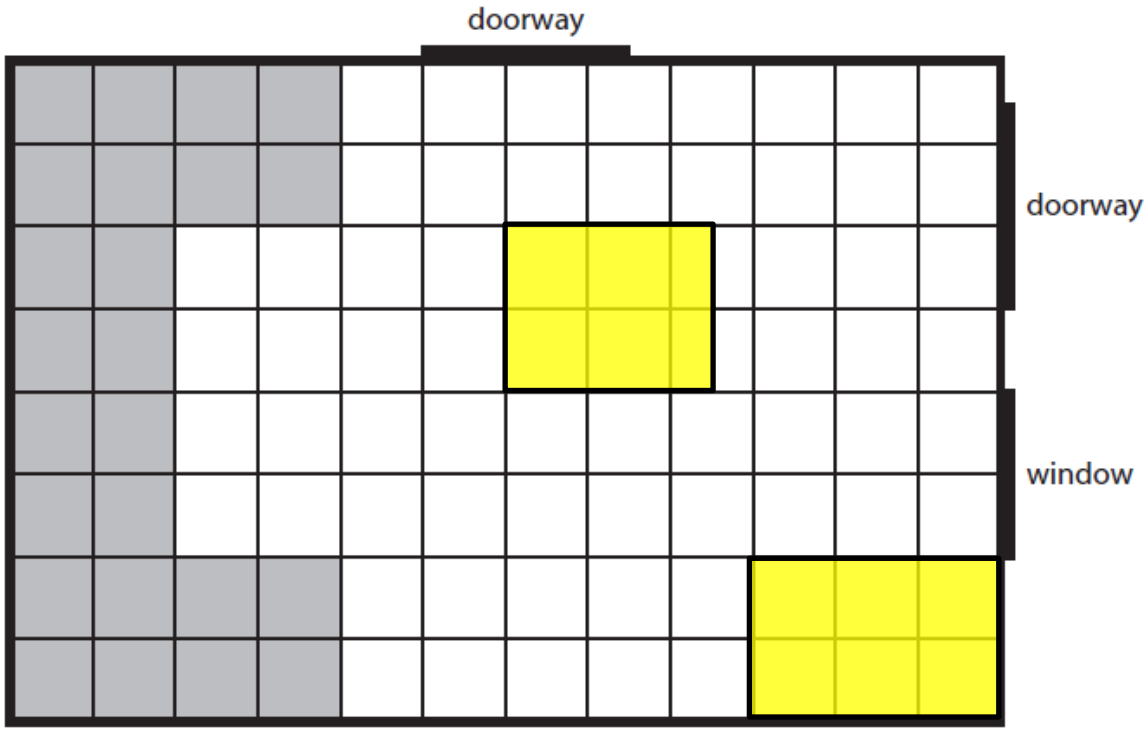

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Question	Process	Mark	Mark Grid	Evidence
Q11	Process to find median value	1	A	Selects or indicates 74.80
	Begins to work with expenses or match fees	1 or	B	e.g. 36 + 27 + 27 (= 90) **OR** (46 × 0.3) + (23 × 0.3) + (14 × 0.3) (= 24.9) **OR** (46 × 0.3) + 36 (=49.8) **or** (14 × 0.3) + 27 (= 31.2) **or** (23 × 0.3) + 27 (=33.9)
	Complete process to find total payment of fees and expenses for all 3 officials before or after working with percentages	2	BC	e.g. (46 × 0.3) + (23 × 0.3) + (14 × 0.3) + '90' (= 114.9) **OR** '49.8' + '31.2' + '33.9' (= 114.9) **OR** 0.67 × '90' **+** 0.67 × '24.9' (= 76.983) **OR** 0.67 × '49.8' + 0.67 × '31.2' + 0.67 × '33.9' (= 76.983)
	Process to find 67% of any relevant total cost	1 or	D	e.g. 0.67 × '114.9' (= 76.983) oe **OR** 0.67 × '90' (= 60.3) **OR** 0.67 × '24.9' (= 16.683) **OR** 0.67 × '49.8' (= 33.366) **or** 0.67 × '31.2' (= 20.904) **or** 0.67 × '33.9' (= 22.713)
	Valid decision with accurate figures	2	DE	Yes **AND** 74.8 **and** 76.98(3)
	Total marks for question	**5**		

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Question	Process	Mark	Mark Grid	Evidence
Q12	Begins to work with formula	1 or	A	e.g. $4 \div 3 \times 3.14$ (= 4.18..) **OR** $2^3 = 8$ **or** $2 \times 2 \times 2$ (= 8) **OR** $\frac{4}{3} \times 3.14 \times 2^3$
	Full process to work with formula	2	AB	$4 \div 3 \times 3.14 \times 2 \times 2 \times 2$ (= 33.493…) oe
	Full process to find volume of chocolate block	1	C	$19 \times 14 \times 0.75$ (= 199.5)
	Process to find volume required or volume available or finds the number of sweets that can be made with one bar	1 or	D	e.g. '33.493..' × 45 (= 1507.2) **OR** '199.5' × 7 (= 1396.5) **OR** '199.5' ÷ '33.493..' (= 5.956..)
	Full process to find figures to compare	2 or	DE	e.g. '1507.2' ÷ '199.5' (= 7.55..) **OR** '33.493..' × 45 (=1507.2) **and** '199.5' × 7 (= 1396.5) **OR** '1396.5' ÷ 45 (= 31.03..) **OR** '1396.5' ÷ '33.493' (= 41.69..) **OR** '5.956..' × 7 (= 41.69..)
	Valid decision with accurate figures	3	DEF	e.g. No **AND** 7.5(5..) (blocks) **OR** No **AND** 1507(.2) **and** 1396(.5) (cm^3 per block) **OR** No **AND** 33(.49..) **and** 31(.03..) (cm^3 per sweet) **OR** No **AND** 41(.69..) (sweets) NB may work with π as 3.14 or better
	Total marks for question	**6**		