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# FUNCTIONAL SKILLS CERTIFICATE **Mathematics**

Level 2  
Mark scheme

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4368  
November 2015

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Version 1.0 Final

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Mark schemes are prepared by the Lead Assessment Writer and considered, together with the relevant questions, by a panel of subject teachers. This mark scheme includes any amendments made at the standardisation events which all associates participate in and is the scheme which was used by them in this examination. The standardisation process ensures that the mark scheme covers the students' responses to questions and that every associate understands and applies it in the same correct way. As preparation for standardisation each associate analyses a number of students' scripts. Alternative answers not already covered by the mark scheme are discussed and legislated for. If, after the standardisation process, associates encounter unusual answers which have not been raised they are required to refer these to the Lead Assessment Writer.

It must be stressed that a mark scheme is a working document, in many cases further developed and expanded on the basis of students' reactions to a particular paper. Assumptions about future mark schemes on the basis of one year's document should be avoided; whilst the guiding principles of assessment remain constant, details will change, depending on the content of a particular examination paper.

Further copies of this mark scheme are available from [aqa.org.uk](http://aqa.org.uk)

## Glossary for Mark Schemes

GCSE examinations are marked in such a way as to award positive achievement wherever possible. Thus, for GCSE Mathematics papers, marks are awarded under various categories.

If a student uses a method which is not explicitly covered by the mark scheme the same principles of marking should be applied. Credit should be given to any valid methods. Examiners should seek advice from their senior examiner if in any doubt.

<b>M</b>	Method marks are awarded for a correct method which could lead to a correct answer.
<b>A</b>	Accuracy marks are awarded when following on from a correct method. It is not necessary to always see the method. This can be implied.
<b>B</b>	Marks awarded independent of method.
<b>ft</b>	Follow through marks. Marks awarded for correct working following a mistake in an earlier step.
<b>SC</b>	Special case. Marks awarded within the scheme for a common misinterpretation which has some mathematical worth.
<b>M dep</b>	A method mark dependent on a previous method mark being awarded.
<b>B dep</b>	A mark that can only be awarded if a previous independent mark has been awarded.
<b>oe</b>	Or equivalent. Accept answers that are equivalent. eg, accept 0.5 as well as $\frac{1}{2}$
<b>[a, b]</b>	Accept values between $a$ and $b$ inclusive.
<b>3.14 ...</b>	Accept answers which begin 3.14 eg 3.14, 3.142, 3.149.
<b>Use of brackets</b>	It is not necessary to see the bracketed work to award the marks.

Examiners should consistently apply the following principles

**Diagrams**

Diagrams that have working on them should be treated like normal responses. If a diagram has been written on but the correct response is within the answer space, the work within the answer space should be marked. Working on diagrams that contradicts work within the answer space is not to be considered as choice but as working, and is not, therefore, penalised.

**Responses which appear to come from incorrect methods**

Whenever there is doubt as to whether a candidate has used an incorrect method to obtain an answer, as a general principle, the benefit of doubt must be given to the candidate. In cases where there is no doubt that the answer has come from incorrect working then the candidate should be penalised.

**Questions which ask candidates to show working**

Instructions on marking will be given but usually marks are not awarded to candidates who show no working.

**Questions which do not ask candidates to show working**

As a general principle, a correct response is awarded full marks.

**Misread or miscopy**

Candidates often copy values from a question incorrectly. If the examiner thinks that the candidate has made a genuine misread, then only the accuracy marks (A or B marks), up to a maximum of 2 marks are penalised. The method marks can still be awarded.

**Further work**

Once the correct answer has been seen, further working may be ignored unless it goes on to contradict the correct answer.

**Choice**

When a choice of answers and/or methods is given, mark each attempt. If both methods are valid then M marks can be awarded but any incorrect answer or method would result in marks being lost.

**Work not replaced**

Erased or crossed out work that is still legible should be marked.

**Work replaced**

Erased or crossed out work that has been replaced is not awarded marks.

**Premature approximation**

Rounding off too early can lead to inaccuracy in the final answer. This should be penalised by 1 mark unless instructed otherwise.

Q	Answer	Mark	Comments																																																																																																																																												
1(a)	<p>Fully correct response</p> <p>Eg 1</p> <table border="1" style="margin-left: auto; margin-right: auto;"> <thead> <tr> <th></th> <th colspan="4">Girls</th> </tr> </thead> <tbody> <tr> <td><b>Team 1</b></td> <td>A</td> <td>E</td> <td>C</td> <td>F</td> </tr> <tr> <td><b>Team 2</b></td> <td>A</td> <td>E</td> <td>G</td> <td>B</td> </tr> <tr> <td><b>Team 3</b></td> <td>B</td> <td>C</td> <td>D</td> <td>F</td> </tr> </tbody> </table> <p>Eg 2</p> <table border="1" style="margin-left: auto; margin-right: auto;"> <thead> <tr> <th></th> <th colspan="4">Girls</th> </tr> </thead> <tbody> <tr> <td><b>Team 1</b></td> <td>A</td> <td>C</td> <td>D</td> <td>F</td> </tr> <tr> <td><b>Team 2</b></td> <td>B</td> <td>C</td> <td>E</td> <td>A</td> </tr> <tr> <td><b>Team 3</b></td> <td>B</td> <td>G</td> <td>D</td> <td>F</td> </tr> </tbody> </table>		Girls				<b>Team 1</b>	A	E	C	F	<b>Team 2</b>	A	E	G	B	<b>Team 3</b>	B	C	D	F		Girls				<b>Team 1</b>	A	C	D	F	<b>Team 2</b>	B	C	E	A	<b>Team 3</b>	B	G	D	F	<p>B4</p> <p>Rb</p> <p>Rc</p> <p>lb</p> <p>lb</p>	<p>B3 Exactly one of the criteria <b>not</b> met</p> <p>Eg1 B and F not in same team</p> <table border="1" style="margin-left: auto; margin-right: auto;"> <thead> <tr> <th></th> <th colspan="4">Girls</th> </tr> </thead> <tbody> <tr> <td><b>Team 1</b></td> <td>A</td> <td>E</td> <td>C</td> <td>F</td> </tr> <tr> <td><b>Team 2</b></td> <td>A</td> <td>E</td> <td>G</td> <td>F</td> </tr> <tr> <td><b>Team 3</b></td> <td>B</td> <td>C</td> <td>D</td> <td>B</td> </tr> </tbody> </table> <p>Eg 2 A, B or F not runner 4</p> <table border="1" style="margin-left: auto; margin-right: auto;"> <thead> <tr> <th></th> <th colspan="4">Girls</th> </tr> </thead> <tbody> <tr> <td><b>Team 1</b></td> <td>A</td> <td>E</td> <td>C</td> <td>F</td> </tr> <tr> <td><b>Team 2</b></td> <td>A</td> <td>E</td> <td>G</td> <td>B</td> </tr> <tr> <td><b>Team 3</b></td> <td>B</td> <td>C</td> <td>D</td> <td>G</td> </tr> </tbody> </table> <p>B2 Exactly two of the criteria <b>not</b> met</p> <p>Eg 1 B and F not in same team A or B not runner 1</p> <table border="1" style="margin-left: auto; margin-right: auto;"> <thead> <tr> <th></th> <th colspan="4">Girls</th> </tr> </thead> <tbody> <tr> <td><b>Team 1</b></td> <td>A</td> <td>E</td> <td>C</td> <td>F</td> </tr> <tr> <td><b>Team 2</b></td> <td>D</td> <td>E</td> <td>G</td> <td>B</td> </tr> <tr> <td><b>Team 3</b></td> <td>B</td> <td>C</td> <td>D</td> <td>G</td> </tr> </tbody> </table> <p>Eg 2 A in all 3 teams B in same team twice</p> <table border="1" style="margin-left: auto; margin-right: auto;"> <thead> <tr> <th></th> <th colspan="4">Girls</th> </tr> </thead> <tbody> <tr> <td><b>Team 1</b></td> <td>A</td> <td>E</td> <td>D</td> <td>F</td> </tr> <tr> <td><b>Team 2</b></td> <td>B</td> <td>A</td> <td>B</td> <td>F</td> </tr> <tr> <td><b>Team 3</b></td> <td>B</td> <td>C</td> <td>G</td> <td>A</td> </tr> </tbody> </table> <p>B1 At least one of the criteria correct</p> <p>Eg All in at least one team</p> <table border="1" style="margin-left: auto; margin-right: auto;"> <thead> <tr> <th></th> <th colspan="4">Girls</th> </tr> </thead> <tbody> <tr> <td><b>Team 1</b></td> <td>A</td> <td>B</td> <td>C</td> <td>D</td> </tr> <tr> <td><b>Team 2</b></td> <td>E</td> <td>F</td> <td>G</td> <td>A</td> </tr> <tr> <td><b>Team 3</b></td> <td>B</td> <td>C</td> <td>D</td> <td>A</td> </tr> </tbody> </table>		Girls				<b>Team 1</b>	A	E	C	F	<b>Team 2</b>	A	E	G	F	<b>Team 3</b>	B	C	D	B		Girls				<b>Team 1</b>	A	E	C	F	<b>Team 2</b>	A	E	G	B	<b>Team 3</b>	B	C	D	G		Girls				<b>Team 1</b>	A	E	C	F	<b>Team 2</b>	D	E	G	B	<b>Team 3</b>	B	C	D	G		Girls				<b>Team 1</b>	A	E	D	F	<b>Team 2</b>	B	A	B	F	<b>Team 3</b>	B	C	G	A		Girls				<b>Team 1</b>	A	B	C	D	<b>Team 2</b>	E	F	G	A	<b>Team 3</b>	B	C	D	A
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Q	Answer	Mark	Comments
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<b>Additional guidance</b>	
<b>1(a)</b>	Accept any clear indication of girls names
	Mark the final response unless blank or incomplete when you can mark the first grid
	If a girl is selected twice for the same race, treat as one criterion not met
	If a girl is selected three or four times for the same race, award a maximum of B1
	If entries are blank, award a maximum of B1

Q	Answer	Mark	Comments
<b>1(b)</b>	<b>Alternative Method 1</b>		
	26.61 – 0.25 or 26.36	M1 <i>Ra</i>	must be 0.25
	5.29 m + 10 cm or 5.29 + 0.1 or 5.39 (m)	M1 <i>Rb</i>	incompatible units must be shown
	reads points for their 26.36 (s) or 766 or reads points for their 5.39 m or 668	M1 <i>Aa</i>	
	attempting new points total 570 + their 766 + 547 + their 668 + 655 + 884 + 887	M1 <i>Ra</i>	their 766 – 745 or 21 and their 668 – 640 or 28 and 4928 + their 21 + their 28
	4977 and No	A2 <i>lb</i>	A1 4977 A1ft correct decision for their 4977

Q	Answer	Mark	Comments
<b>1(b)</b>	<b>Alternative Method 2</b>		
	26.61 – 0.25 or 26.36	M1 <i>Ra</i>	must be 0.25
	5.29 m + 10 cm or 5.39 m	M1 <i>Rb</i>	incompatible units must be shown
	reads points for their 26.36 (s) or 766 or reads points for their 5.39 m or 668	M1 <i>Aa</i>	
	5000 – 4928 or 72 and their 766 – 745 or 21 and their 668 – 640 or 28 and their 72 – their 21 – their 28	M1 <i>Ra</i>	5000 – 4928 or 63 and their 766 – 745 or 13 and their 668 – 640 or 28 and their 21 + their 28 or 49
	23 and No or 49 and 72 and No	A2 <i>lb</i>	A1 23 or 49 and 72 A1ft correct decision for their values

<b>Additional guidance</b>	
<b>1(b)</b>	Adding 0.25 (s) instead of subtracting, can score M0M1M1M1A1ft
	Subtracting 10 cm instead of adding, can score M1M0M1M1A1ft
	Adding 0.25 (s) and subtracting 10 cm, can score M0M0M1M1A1ft
	766 or 668 implies M2 766 and 668 implies M3
	To score M1 for new points total, allow any number of misreads but no omissions or extras Must score 4 <sup>th</sup> M1 for A1ft



Q	Answer	Mark	Comments
1(c)	attempt at total cost or attempt at total athletes	M1 <i>Ra</i>	for at least 3 buses (can be the same size) e.g. $3 \times 150 = (\pounds)450$ or $4 \times 40 = 160$ (athletes)
	attempt at total cost or attempt at total athletes	M1 <i>Aa</i>	must be for a combination of more than one size of bus with at least 3 buses e.g. $3 \times 150$ (+) their $2 \times 95$ (= 640) $3 \times 40$ (+) their $2 \times 20$ = (160 (athletes))
	total cost and total number of athletes given for clearly identified selection of buses where $\pounds550 \leq \text{total cost} \leq \pounds650$ and $135 \leq \text{total athletes} \leq 155$	M1 <i>la</i>	must be for the same combination of more than one size of bus e.g. $2L \ 5S \rightarrow (2 \times 150 + 5 \times 65) \rightarrow (\pounds)630$ $2L \ 5S \rightarrow (2 \times 40 + 5 \times 14) \rightarrow 150$ (athletes)
	3 large and 2 small and $\pounds580$ and 148 athletes and Yes $\pounds580$ can be implied e.g. $\pounds20$ less 148 can be implies e.g. 3 seats spare	A2 <i>lb</i>	A1 $\pounds580$ and 148 athletes or 3 large and 2 small A1ft correct conclusion for their buses or their cost and their athletes

Additional Guidance			
1(c)	For full marks bus sizes must be explicitly stated together with cost and number of athletes Must score 2 <sup>nd</sup> M1 for A1ft		
	Examples		
	$3 \times 150 + 2 \times 65$ so 3L, 2S		M1M1A1
	$3 \times 40 + 2 \times 14$		M1M1A0

Q	Answer	Mark	Comments
2(a)	29	B1 Aa	

2(b)	<b>Alternative Method 1</b> Walk A (Levisham)		
	(arrive) 11:00 at Levisham	B1 Rb	can be implied by their time walk ends
	7 ÷ 2.5 or 2.8	M1 Ra	
	2 hours 48 minutes	A1 Aa	
	their 11:00 + their 2h 48min or 13:48	B1ft Aa	ft their 11.00 and their 2h 48min
	14:20 train from Levisham or arrive Grosmont 15:05	B1ft Aa	allow any train from Levisham to Grosmont after 13:48
	leave Grosmont 16:30	B1ft Aa	implies at least 1 hour at Grosmont condone 17:30
	clearly communicated and correct plan Leave (Pickering) 10:40 Arrive Levisham 11:00 Correct walking time 2 hours 48 min Leave Levisham 14:20 Arrive Grosmont 15:05 Leave Grosmont 16:30 Arrive Pickering 17:40	B2 Ia	B1 clearly communicated plan with up to two errors or omissions

Q	Answer	Mark	Comments
<b>2(b)</b>	<b>Alternative Method 2</b> Walk B (Newton Dale)		
	(arrive) 11:09 at Newton Dale	B1 <i>Rb</i>	can be implied by their time walk ends
	$6 \div 2.5$ or 2.4	M1 <i>Ra</i>	
	2 hours 24 minutes	A1 <i>Aa</i>	
	their 11:09 + their 2h 24min or 13:33	B1ft <i>Aa</i>	ft their 11.09 and their 2h 24min
	14:29 train from Newton Dale or arrive Grosmont 15:05	B1ft <i>Aa</i>	allow any train from Newton Dale to Grosmont after 13:33
	leave Grosmont 16:30 or 17:30	B1ft <i>Aa</i>	implies at least 1 hour at Grosmont
clearly communicated and correct plan Leave (Pickering) 10:40 Arrive Newton Dale 11:09 Correct walking time 2 hours 24 min Leave Newton Dale 14:29 Arrive Grosmont 15:05 Leave Grosmont 16:30 Arrive Pickering 17:40	B2 <i>la</i>	B1 clearly communicated plan with up to two errors or omissions	

Q	Answer	Mark	Comments
<b>2(b)</b>	<b>Alternative Method 3</b> Walk C (Goathland)		
	(arrive) 11:30 at Goathland	B1 <i>Rb</i>	can be implied by their time walk ends
	5 ÷ 2.5 or 2.2	M1 <i>Ra</i>	
	2 hours 12 minutes	A1 <i>Aa</i>	
	their 11:30 + their 2h 12min	B1ft <i>Aa</i>	ft their 11:30 and their 2h 12min
	end walk at Grosmont at their 13:42	B1ft <i>Aa</i>	
	leave Grosmont 15:30 or 16:30 or 17:30	B1 <i>Aa</i>	implies at least 1 hour at Grosmont
	clearly communicated and correct plan Leave (Pickering) 10:40 Arrive Goathland 11:30 Correct walking time 2 hours 12 min Arrive Grosmont 13:42 Leave Grosmont 15:30 or 16:30 Arrive Pickering 16:40 or 17:40	B2 <i>la</i>	B1 clearly communicated plan with up to two errors or omissions

Q	Answer	Mark	Comments
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Additional Guidance	
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<b>2(b)</b>	<u>Decimal times</u> M1 can be implied e.g. 2h 80min or 3h 20min implies 2.8 (Alt 1) 2h 40min implies 2.4 (Alt 2) 2h 20min implies 2.2 (Alt 3)
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Q	Answer	Mark	Comments
3(a)	2600	B1 Aa	
Check	Calculation of perimeter with 620 → 600 165 → 150 195 → 200 320 → 300 815 → 800 485 → 500	B1ft Ab	e.g. 1 $2 \times (500 + 800) = 2600$ e.g. 2 $600 + 150 + 200 + 300 + 800 + 500 = 2550$

Additional Guidance	
3(a)	Checking incorrect answers can score B1ft Check of 2405 → $500 + 600 + 200 + 300 + 800 = 2400$ Check of 2240 → $500 + 600 + 300 + 800 = 2200$ Check of 395 275 → $500 \times 800 = 400\ 000$

3(b)	their $2600 \times 2.3(0) \times 1.2$ or their $2600 \times 2.3(0) + \text{their } 2600 \times 2.3(0) \times 0.2$	M2 Ra Rc	M1 $2.3(0) \times 1.2$ or $2.3(0) + 2.3(0) \times 0.2$ or (£)2.76 or their $2600 \times 2.3(0)$ or 5980 or their $2600 \times 1.2$ or their $2600 + 2600 \times 0.2$ or 3120
	(£)7176	A1ft Aa	ft their answer to (a) $2240 \times 2.3 \times 1.2 \rightarrow 6182.40$ $2405 \times 2.3 \times 1.2 \rightarrow 6637.80$ $395\ 275 \times 2.3 \times 1.2 \rightarrow 1\ 090\ 959$

Q	Answer	Mark	Comments
<b>3(c)</b>	620 × 485 or 300 700 or 320 × (815 – 620) or 62 400 or 320 × 815 or 260 800 or 620 × (485 – 320) or 102 300 or 815 × 485 or 395 275 or (815 – 620) × (485 – 320) or 32 175	M1 Ra	
	their 300 700 + their 62 400 or their 260 800 + their 102 300 or their 395 275 – their 32 175	M1 Rb	must add or subtract two areas
	their 363 100 ÷ 800	M1 Aa	their 363 100 must be an area
	[453, 454] and No	A2 lb	A1 [453, 453] A1ft correct conclusion from their value

<b>Additional Guidance</b>	
<b>3(c)</b>	Must score 3 <sup>rd</sup> M1 for A1ft

Q	Answer	Mark	Comments
3(d)	$(3.0 \times 4 + 3.1 \times 8 + 3.2 \times 16 + 3.3 \times 9 + 3.4 \times 2 + 3.5 (\times 1)) \div 40 = 3.2$ or $(3.0 \times 4 + 3.1 \times 8 + 3.2 \times 16 + 3.3 \times 9 + 3.4 \times 2 + 3.5 \times 1) \div 3.2 = 40$ or $(12.0 + 24.8 + 51.2 + 29.7 + 6.8 + 3.5) \div 40 = 3.2$ or $(12.0 + 24.8 + 51.2 + 29.7 + 6.8 + 3.5) \div 3.2 = 40$	B1  B2 <i>Ra</i> <i>lb</i>	$(3.0 \times 4 + 3.1 \times 8 + 3.2 \times 16 + 3.3 \times 9 + 3.4 \times 2 + 3.5 (\times 1))$ or their 12.0 + their 24.8 + their 51.2 + their 29.7 + their 6.8 + their 3.5 or 128 or $128 \div 40$

**Additional Guidance**

3(d)	For B1 allow one error or omission their 12 must come from $3.0 \times 4$ etc
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Q	Answer	Mark	Comments
<b>3 (e)</b>	1680 ÷ 8 or 210 (rams)	M1 <i>Ra</i>	
	their 210 × 7 or 1680 – their 210 or 1470 (ewes)	M1 <i>Rc</i>	
	their 210 × 3.6 + their 1470 × 3.2(0) or 756 + 4704 or 5460	M1 <i>Aa</i>	3.6 × 4.2 or 15.12 and 3.2 × 4.2 or 13.44
	their 5460 × 4.2(0)	M1 <i>Aa</i>	their 210 × their 15.12 + their 1470 × their 15.12
	(£)22 932 and Yes	A2 <i>lb</i>	A1 (£)22 932 with no or incorrect decision A1ft correct decision based on their (£)22 932

Additional Guidance	
<b>3(e)</b>	Must score 3 <sup>rd</sup> M1 and 4 <sup>th</sup> M1 for A1ft.
	their 5460 must be a weight
	If only rams or only ewes are considered can score 4 <sup>th</sup> M1 only
	Example
	1680 ÷ 7 = 240 M0
	1680 – 240 = 1440 M1
	240 × 3.6 + 1440 × 3.2 = 5472 M1
	5472 × 4.2 = 22982.4 M1
	Yes A1ft

Q	Answer	Mark	Comments
<b>4(a)</b>	<b>Alternative Method 1</b>		
	(240 ÷ 60) × 350 or 1400 or (180 ÷ 15) × 95 or 1140	M1 <i>Ra</i>	
	their 1400 + their 1140 or 2540	M1 <i>Rb</i>	1400 ÷ 1000 or 1.4 (kg) or 1140 ÷ 1000 or 1.14(kg)
	their 2540 ÷ 1000 or 2.54(kg)	M1 <i>Aa</i>	their 1.4 + their 1.14 or 2.54 (kg)
	2.54 and No	A2 <i>la</i>	A1 2.54 A1ft correct decision for their value
<b>4(a)</b>	<b>Alternative Method 2</b>		
	(240 ÷ 60) × 350 or 1400 or (180 ÷ 15) × 95 or 1140	M1 <i>Ra</i>	
	their 1400 + their 1140 or 2540	M1 <i>Rb</i>	1400 ÷ 1000 or 1.4 (kg) or 1140 ÷ 1000 or 1.14(kg)
	2.5 × 1000 or 2500	M1 <i>Aa</i>	
	2540 and 2500 and No	A2 <i>la</i>	A1 2540 and 2500 A1ft correct decision for their values

Q	Answer	Mark	Comments
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<b>4(a)</b>	<b>Alternative Method 3</b>		
	(240 ÷ 60) × 350 or 1400 or (180 ÷ 15) × 95 or 1140	M1 <i>Ra</i>	oe
	2.5 × 1000 or 2500	M1 <i>Rb</i>	
	2500 – their 1400 or 1100 or 2500 – their 1140 or 1360	M1 <i>Aa</i>	2.5 – their 1.4 or 1.1 or 2.5 – their 1.14 or 1.36
	1100 and 1140 and No or 1360 and 1400 and No	A2 <i>I</i>	A1 1.1 and 1.14 or 1.36 and 1.4 A1ft correct decision for their values

<b>Additional guidance</b>	
<b>4(a)</b>	oe eg 240 ÷ 60 may be seen as 4 , 180 ÷ 15 may be seen as 12 Must score M3 for A1ft

Q	Answer	Mark	Comments
4(b)	$(240 + 180) \div 48$ or $420 \div 48$ or $8.75$	M1 Rb	
	9	A1 Aa	SC1 (fudge) 4 and (chocolate) 5
Check	reverse calculation or an alternative method or approximation	B1ft Ab	

**Additional Guidance**

4(b) Check	<u>Reverse calculation</u> → must be the inverse of their original calculation	
	$(240 + 180) \div 48 = 8.75 \rightarrow 9$	<u>Check</u> allow $8.75 \times 48 = 240 = 180$ $8.75 \times 48 = 420$ and $240 + 180 = 420$ seen
	$180 + 240 = 420$ $8 \times 48 = 384$ and $9 \times 48 = 432 \rightarrow 9$	<u>Check</u> $384 \div 48 = 8$ and $432 \div 48 = 9$ if 420 seen or $384 \div 8 = 48$ and $432 \div 9 = 48$ if 420 seen
	$240 \div 48 = 5$ and $180 \div 48 = 3.75 \rightarrow 4$ $5 + 3.75 = 8.75 \rightarrow 9$	<u>Check</u> $(8.75 - 3.75) \times 48 = 240$ or $(8.75 - 5) \times 48 = 180$
	<u>Alternative calculation</u> → must be an original calculation and a valid alternative	
	$180 + 240 = 420$ $8 \times 48 = 384$ and $9 \times 48 = 432 \rightarrow 9$	$(240 + 180) \div 48 = 8.75 \rightarrow 9$
	<u>Approximation</u> → must be original calculation repeated with values rounded	
	$(240 + 180) \div 48 = 8.75 \rightarrow 9$	<u>Check</u> $(250 + 200) \div 50 = 9$
	<u>General</u> if 9 only is given in the checking space award B2B0 Award marks if answer (or check) given in wrong space	

Q	Answer	Mark	Comments
<b>4(c)</b>	165 ÷ 40 or 4(.1 ...) or 165 ÷ 30 or 5(.5) or 85 ÷ 40 or 2(.1 ...) or 85 ÷ 30 or 2(.8 ...) or 95 ÷ 40 or 2(.3 ...) or 2(.4) or 95 ÷ 30 or 3(.1 ...) or 3(.2)	M1 Ra	
	4 and 2 and 3 or 5 and 2 and 2	M1 Rc	must be integer values rounded down from calculations
	their 4 × their 2 × their 3	M1 Aa	multiplying their integer values rounded up or down from calculations
	24	A1 Aa	

<b>Additional Guidance</b>	
<b>4(c)</b>	their 4 × their 2 × their 3 is not 5 and 2 and 2

Q	Answer	Mark	Comments
<b>4(d)</b>	<b>Alternative Method 1</b>		
	10 (chocolate) and 8 (fudge) and 2 (mixed)	B1 <i>Ra</i>	correct values for $\frac{1}{2}$ of 20, $\frac{2}{5}$ of 20 and the remainder seen or used
	4.84 × their 10 or 48.4 or 6.28 × their 8 or 50.24 or 5.56 × their 2 or 11.12 or 6.99 × their 10 or 69.9 or 8.00 × their 8 or 64 or 7.50 × their 2 or 15	M1 <i>Rc</i>	working out the cost of all boxes of chocolates, pieces of fudge or mixed or selling price of all boxes of chocolates, pieces of fudge or mixed
	their 48.4 + their 50.24 + their 11.12 or 109.76 and their 69.9 + their 64 + their 15 or 148.9	M1 <i>Rc</i>	(their 69.9 – their 48.4) or 21.5 and (their 64 – their 50.24) or 13.76 and (their 15 – their 11.12) or 3.88
	their 148.9 – their 109.76	M1 <i>Aa</i>	their 21.5 + their 13.76 + their 3.88
(£)39(.14) and No	A2 <i>lb</i>	A1 (£)39(.14) or A1ft correct decision for their (£)39(.14)	

Q	Answer	Mark	Comments
4(d)	<b>Alternative Method 2</b>		
	10 (chocolate) and 8 (fudge) and 2 (mixed)	B1 <i>Ra</i>	correct values for $\frac{1}{2}$ of 20, $\frac{2}{5}$ of 20 and the remainder seen or used
	6.99 – 4.84 or 2.15 or 8.00 – 6.28 or 1.72 or 7.50 – 5.56 or 1.94	M1 <i>Rc</i>	working out the profit per box for boxes of chocolates, pieces of fudge or mixed boxes
	their 2.15 × their 10 or 21.5 and their 1.72 × their 8 or 13.76 and their 1.94 × their 2 or 3.88	M1 <i>Rc</i>	
	their 21.5 + their 13.76 + their 3.88	M1 <i>Aa</i>	
	(£)39(.14) and No	A2 <i>lb</i>	A1 (£)39(.14) or A1ft correct decision for their (£)39(.14)

<b>Additional Guidance</b>				
4(d)	10, 4 and 6	B0	10, 8, and 2 → 10, 5 and 5	B0
	69.9 + 32 + 45 or 146.9 and 48.4 + 25.12 + 33.36 or 106.88	M1M1	69.9 + 40 + 37.5 or 147.4 and 48.4 + 31.4 + 27.8 or 107.6	M1M1
	their 146.9 – their 106.88	M1	their 147.4 – their 107.6	M1
	40.02 and Yes	A1ft	39.8 and No	A1ft
	Must score M3 for A1 ft			