



## **GCSE MARKING SCHEME**

**AUTUMN 2022** 

GCSE MATHEMATICS – COMPONENT 1 (FOUNDATION TIER) C300U10-1

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## INTRODUCTION

This marking scheme was used by WJEC for the 2022 examination. It was finalised after detailed discussion at examiners' conferences by all the examiners involved in the assessment. The conference was held shortly after the paper was taken so that reference could be made to the full range of candidates' responses, with photocopied scripts forming the basis of discussion. The aim of the conference was to ensure that the marking scheme was interpreted and applied in the same way by all examiners.

It is hoped that this information will be of assistance to centres but it is recognised at the same time that, without the benefit of participation in the examiners' conference, teachers may have different views on certain matters of detail or interpretation.

WJEC regrets that it cannot enter into any discussion or correspondence about this marking scheme.

## EDUQAS GCSE MATHEMATICS

## AUTUMN 2022 MARK SCHEME

Component 1: Foundation Tier	Mark	Comment
1.(a)		
57	B1	
1.(b) 13.732	B2	B1 for attempting to <b>add</b> the correct place values in the correct order; allow one slip, but the thousandths digit must be a 2.
1.(c) 11	B1	
$\frac{1.(d)}{\frac{3}{4}}$	B1	Accept 3 / 4. B0 for 3 ÷ 4.
1.(e) 32(%)	B1	
1.(f) Any value less than –10	B1	
	(7)	
2.(a) 81 – 44	M1	Allow <u>one</u> error in reading scale e.g. 80 – 44 or 82 – 44 or 81 – 42. Calculation must be seen (or implied) for M1 A0.
37(%)	A1	CAO
2.(b) Correct bar at 95	B1	Allow good freehand. Ignore inconsistent width.
2.(c) Valid comment e.g. '(The percentage of people owning mobile phones seems to have been) increasing'	E1	If values are given, they have to be correct (44% and 95%) or FT from (a). Allow 'change' only if correct values are referred to. Accept 'gone up' and other informal references to an increase.
	(4)	
3. Correctly completed table e.g. :	B2	Allow the first two rows to be repeated for B2.
A 2 A 3 A 4 B 1 B 2 B 3 B 4 C 1 C 2 C 3 C 4		B1 for at least 6 additional correct rows, ignoring any repeated rows.
	(2)	

	1	
4.(a) 80 - 65 or 180 - 100 - 65 or 360 - (100 + 100 + 80 + 65) oe	M1	Check diagram. Answer line takes precedence. May be seen in stages
( <i>w</i> =) 15	A1	
4.(b)		Check diagram. Answer line takes precedence.
(x =) 70	B1	
$180 - 2 \times 70$ or $180 - 70 - x$	M1	FT 'their <i>x</i> '. May be seen in stages.
(y =) 40	A1	
	(5)	
5.		
(Number of CDs =) $120 \div 5 \times 3$ oe	M1	
72	A1	
(Number of Vinyl=) $\frac{15}{100} \times 120$ oe	M1	Must be a <u>complete</u> method which would lead to the correct answer.
18	A1	
(Number of digital downloads = 120 - 72 - 18 =) 30	B1	FT providing at least M1 M1 previously awarded and their '72 + 18' < 120
Alternative method:		
$\frac{3}{5} = \frac{60}{100}$ or $\frac{3}{5} \times 100$	M1	
(Percentage of albums that are CDs =) 60%	A1	
(Percentage of albums that are digital downloads = $100 - 60 - 15 =$ ) 25%	B1	FT 'their 60%' provided unambiguously stated.
$\frac{25}{100} \times 120$ or $120 \div 4$ oe	M1	FT 'their 25%' provided not 50%.
30	A1	FT
	(5)	
6.(a)	, , ,	
16 <i>x</i>	B3	B2 for $4x + 6 \times 2x$ oe
		<ul> <li>B1 for any one of the following:</li> <li>(each large orange costs) 2x (pence)</li> <li>(total cost of large oranges is) 6 × 2x or 2 × 6x or 12x (pence)</li> <li>(total cost of small oranges is) 4x (pence)</li> </ul>
6.(b)		
100	PO	Allow 100 4
$25y \text{ or } \frac{100y}{4}$	B2	Allow $100y \div 4$ . If units are given, they must be correct for B2.
		B1 for $(\pounds) \frac{y}{4}$ or $(\pounds)y \div 4$ or for sight of 100y
	(=)	4
	(5)	

Valid explanation e.g. He worked out 2 × (£)3.20' oeE1Accept e.g. 'Le doubled the cost of 2 chicken pieces'7.(a)(ii) Valid explanation e.g. (II charged for) one chicken piece and three chicken pieces (It would cost £6.20)' 7.(b)Do not accept e.g. '2 × 2' only7.(a)(ii) Valid explanation e.g. (II charged for) one chicken piece and three chicken pieces (It would cost £6.20)' 7.(b)E1Accept 4.20 + 2(.00) = 6.20 oe Do not allow '(£)6.20' only.8.(a) 2 and -18 OR -2 and 18B1 for any one of the following: • 2 × (£)33 + (£)17 • 2 ± (£)01 (Tarys) × 2 + 100 (Tarys) • 1 finding a number of travs that cost £83 (not 600) • e.g. 4 × 100 (trays) + 3 × 25 (trays) = 475 (trays)8.(a) 2 and -3 and -4B2B1 for two integers, one positive and one negative, that satisfy one of the criteria e.g2 and -3 and 0 -4 and -1 and 09.(a) 3 × 75M19.(b) 375 + 75M19.(b) 375 + 75M19.(b) 375 + 75M16.(cm)B1 FT their 5' + 10. Correct answer implies 3 marks.Alternative method: (a) $75 + 75$ M16.(m)B1 FT their 37.5' FT7.5 - 75M1 M17.5 - 75M1 M17.5 - 75M1 FT their 37.5' FT9.(c) 9.(c)A1 FT their 37.5'9.(c) 9.(c)FT their 37.5' FT9.(c) 9.(c)FT their 75.'9.(c) 9.(c)E1 Correct answer implies 3 marks.8.(f) 9.(c)FT their 75.'9.(c)FT their 75.'9.(c)FT their 75.'9.(c)<		1	1
'He worked out $2 \times (\hat{E})3.20'$ oepieces'7.(a)(ii)Do not accept e.g. $2 \times 2'$ onlyYalid explanation e.g.E1Accept $4.20 + 2(.00) = 6.20$ oeDo not allow '(E)6.20' only.7.(b)B1 for any one of the following: • $2 \times (E)33 + (E)17$ • $250$ (trays) $\times 2 + 100$ (trays)600 (trays)B2B1 for any one of the following: • $2 \times (E)33 + (E)17$ • $250$ (trays) $\times 2 + 100$ (trays)610 (trays)B281 for any one of the following: • $2 \times (E)33 + (E)17$ • $250$ (trays) $\times 2 + 100$ (trays)8.(a)(4)8.(a)B28.(a)B1 for two integers, one positive and one negative, that satisfy one of the criteria8.(b)2 and $-3$ and $-4$ 8.(b)B1 for three integers, two of which are negative, that satisfy one of the criteria e.g. $-2$ and $-3$ and $0$ $-4$ and $-1$ and $0$ 9.(a)(4)3 $\times 75$ M1225 (cm) oeA19.(b)S75 $\pm 75$ 9.(b)B1375 $\pm 75$ M15 (mm)A16 (fm)A175 $\pm 10 = 33.75$ (cm) $37.5 + 75$ M1FT their $37.5' \pm 10$ . Correct answer implies 3 marks.Alternative method: $1375 + 75$ 9.(c)A175 $\pm 75$ M1FT their $37.5'$ M1FT their $37.5'$ Alternative method: $1375 + 75$ 9.(c)A1FT their $37.5'$ M1FT their $37.5'$ M2Harmative method: tran $37.5' - 75$ M3 <td< td=""><td>7.(a)(i) Valid explanation e.g.</td><td>⊑1</td><td>Accent e.g. 'He doubled the cost of 2 chicken</td></td<>	7.(a)(i) Valid explanation e.g.	⊑1	Accent e.g. 'He doubled the cost of 2 chicken
7.(a)(ii) Valid explanation e.g. (If charged for) one chicken piece and three chicken pieces (It would cost £6.20)' 		<b>L</b> 1	
T(a)(ii) Valid explanation e.g. (If charged for) one chicken piece and three chicken pieces (it would cost £6.20)'E1Accept $4.20 + 2(.00) = 6.20$ oe (Do not allow '(£) 6.20' only. $500$ (trays) $21$ $21$ storm y one of the following: • $2 \times (£)33 \times (£)17$ • $250$ (trays) $\times 2 + 100$ (trays) • finding a <u>number of trays</u> that cost £83 (not 600) • $9.4 \times 100$ (trays) + $3 \times 25$ (trays) = $475$ (trays) $8(a)$ $2and -18$ OR $-2 and 18$ $B2$ $8(a)$ $2and -3 and -4$ $B2$ $8(b)$ $2and -3$ and $-4$ $B2$ $8(a)$ $2and -3$ and $-4$ $B2$ $8(b)$ $2and -3$ and $-4$ $B2$ $8(b)$ $2and -3$ and $-4$ $B1$ for three integers, two of which are negative, that satisfy one of the criteria $e.g2 and -3 and 0$ $9(a)$ $(4)$ $4$ $9(a)$ $(4)$ $9(a)$ $(4)$ $9(a)$ $(4)$ $9(a)$ $(5 \div 10 = )0.5$ (cm) $375 \div 75$ M1 $5$ (mm) $A1$ $5$ (mm) $A1$ $75 \div 75$ $M1$ $75$			
Valid explanation e.g. (If charged for) one chicken piece and three chicken pieces (it would cost £6.20)'E1Accept $4.20 + 2(.00) = 6.20$ oe Do not allow '(£)6.20' only.7.(b) 600 (trays)B2B1 for any one of the following: • $2 \times (2)33 + (E)17$ • $250 (trays) \times 2 + 100 (trays)81for any one of the following:• 2 \times (2)33 + (E)17• 250 (trays) \times 2 + 100 (trays)81and -18 OR -2 and 188.(a)2 and -18 OR -2 and 18B281B1 for two integers, one positive and onenegative, that satisfy one of the criteria8.(b)2 and -3 and -4B28.(b)2 and -3 and -4B29.(a)3 \times 75M19.(a)375 \div 75M16.(b)225 (crm) oeA19.(b)375 \div 75M16.(a)275 \div 75M16.(b)29.(b)A17.(b)375 \div 75M16.(cm)A17.(cm)B117 their 5' \pm 10.Correct answer implies 3 marks.Alternative method:(375 \div 10 = ) 37.5 (cm)B1417.75M1417.75M1417.75M1417.75M1417.75M1417.75M1417.75M1417.75M1417.76M1417.77M1417.77M2417.75M1417.75M1417.75M1417.75M141$			Do not accept e.g. $(2 \times 2)$ only
Uff charged for) one chicken piece and three chicken pieces (it would cost £6.20)'Do not allow '(£)6.20' only. $7.(b)$ $Do not allow '(£)6.20' only.600 (trays)2 \times (£)33 + (£)17600 (trays)2 \times (£)33 + (£)172 \times (£)33 + (£)172 \times (£)33 + (£)172 \times (£)33 + (£)172 \times (£)33 + (£)178.(a)2 \text{ and } -18 \text{ OR } -2 \text{ and } 182 \text{ and } -18 \text{ OR } -2 \text{ and } 18B28.(a)B1 for two integers, one positive and onenegative, that satisfy one of the criteria8.(b)B22 \text{ and } -3 \text{ and } -4B28.(a)B1 for three integers, two of which are negative,that satisfy one of the criteriae.g2 \text{ and } -3 \text{ and } 0-4 \text{ and } -1 \text{ and } 0-4 \text{ and } -1 \text{ and } 09.(a)3 \times 75M13 \times 75M1225 \text{ (cm) oe}A1375 + 75M15 \text{ (fm)}A15 \text{ (fm)}B17.5 \text{ (cm)}B17.5 \text{ (cm)}B1$	7.(a)(ii)		
chicken pieces (it would cost £6.20)' 7.(b) 000 (trays) $2 = 250 (trays) \times 2 + 100 (trays) + 3 \times 25 (trays) = 475$ (trays) $2 = 250 (trays) \times 2 + 100 (trays) + 3 \times 25 (trays) = 475$ (trays) $2 = 4 \times 100 (trays) + 3 \times 25 (trays) = 475$ (trays) $2 = 4 \times 100 (trays) + 3 \times 25 (trays) = 475$ (trays) $2 = 4 \times 100 (trays) + 3 \times 25 (trays) = 475$ (trays) $2 = 4 \times 100 (trays) + 3 \times 25 (trays) = 475$ (trays) $2 = 4 \times 100 (trays) + 3 \times 25 (trays) = 475$ (trays) $2 = 4 \times 100 (trays) + 3 \times 25 (trays) = 475$ (trays) $2 = 4 \times 100 (trays) + 3 \times 25 (trays) = 475$ (trays) $4 \times 100 (trays) + 3 \times 25 (trays$	Valid explanation e.g.	E1	Accept 4.20 + 2(.00) = 6.20 oe
7.(b) 600 (trays)B2B1 for any one of the following: $2 \times (E)33 + (E)17$ $2 \geq 250 (trays) \times 2 + 100 (trays)$ $4 \times 100 (trays) + 3 \times 25 (trays) = 475$ (trays)8.(a) 2 and -18 OR -2 and 18B2B1 for two integers, one positive and one negative, that satisfy one of the criteria8.(b) 2 and -3 and -4B2B1 for two integers, two of which are negative, that satisfy one of the criteria $e.g 2$ and $-3$ and $-4$ 8.(b) 2 and -3 and -4B2B1 for three integers, two of which are negative, that satisfy one of the criteria $e.g 2$ and $-3$ and $0$ $-4$ and $-1$ and $0$ 9.(a) $3 \times 75$ M1225 (cm) oeA19.(b) 375 $\div 75$ M15 (mm)A1(5 $\div 10 = ) 0.5$ (cm)B1 $C(m)$ Alternative method: $(375 + 10 = ) 37.5$ (cm) $375 + 75$ M1Alternative method: $(375 + 750$ $0.5$ (cm) $0.5$ (cm) $0.5$ (cm) $0.5$ (cm) $75 + 750$ $0.5$ (cm) $375 + 750$ $375 + 750$ $41$ $75 + 750$ $41$ $75 + 750$ $75 + 750$ $75 + 750$ </td <td>'(If charged for) one chicken piece and three</td> <td></td> <td></td>	'(If charged for) one chicken piece and three		
600 (trays)B2B1 for any one of the following: $2 \times (E)33 + (E)17$ $250 (trays) \times 2 + 100 (trays) + 2 + 100 (trays)e finding a number of trays that cost £83 (not 600)e.g. 4 x 100 (trays) + 3 x 25 (trays) = 475 (trays)e.g. 4 x 100 (trays) + 3 x 25 (trays) = 475 (trays)e.g. 4 x 100 (trays) + 3 x 25 (trays) = 475 (trays)e.g. 4 x 100 (trays) + 3 x 25 (trays) = 475 (trays)e.g. 4 x 100 (trays) + 3 x 25 (trays) = 475 (trays)e.g. 4 x 100 (trays) + 3 x 25 (trays) = 475 (trays)e.g. 4 x 100 (trays) + 3 x 25 (trays) = 475 (trays)e.g. 4 x 100 (trays) + 3 x 25 (trays) = 475 (trays)e.g. 4 x 100 (trays) + 3 x 25 (trays) = 475 (trays)e.g. 4 x 100 (trays) + 3 x 25 (trays) = 475 (trays)e.g. 4 x 100 (trays) + 3 x 25 (trays) = 475 (trays)e.g. 4 x 100 (trays) + 3 x 25 (trays) = 475 (trays)e.g. 4 x 100 (trays) + 3 x 25 (trays) = 475 (trays)e.g. 4 x 100 (trays) + 3 x 25 (trays) = 475 (trays)e.g. 4 x 100 (trays) + 3 x 25 (trays) = 475 (trays)e.g. 4 x 100 (trays) + 3 x 25 (trays) = 475 (trays)e.g. 4 x 100 (trays) + 3 x 25 (trays) = 475 (trays)e.g. 4 x 100 (trays) + 3 x 25 (trays) = 475 (trays)e.g. 4 x 100 (trays) + 3 x 25 (trays) = 475 (trays)e.g2 and -3 and -482B1 for three integers, two of which are negative, that satisfy one of the criteriae.g2 and -3 and 0-4 and -1 and 09.(a)(4)9.(b)A19.(b)A19.(b)A19.(c)A181FT their 5' + 10.Correct answer implies 3 marks.Alternative method:(375 + 75 (tray) = 475 (trays) = 475$	chicken pieces (it would cost £6.20)'		Do not allow '(£)6.20' only.
$\begin{array}{c c c c c c c c c c c c c c c c c c c $	7.(b)		
• $250 (trays) \times 2 + 100 (trays)$ •finding a number of trays that cost £83 (not 600) e.g. 4 x 100 (trays) + 3 x 25 (trays) = 475 (trays)•(4)8.(a) 2 and -18 OR -2 and 18B2B1 for two integers, one positive and one negative, that satisfy one of the criteria8.(b) 2 and -3 and -4B2B1 for three integers, two of which are negative, that satisfy one of the criteria e.g2 and -3 and 0 -4 and -1 and 0(4)9.(a) 3 $\times$ 75(4)9.(b) 375 $\div$ 759.(b) 375 $\div$ 759.(b) 375 $\div$ 759.(c) 15 (cm)A1B1 Alternative method: (375 $\div$ 10 =) 0.5 (cm)A1 Alternative method: (375 $\div$ 750.5 (cm)0.5 (cm)A1 thetra strain of the critering and the model have 6 wheels'.B1 Alternative method: (cm)C10 37.5 $\div$ 75C10 (cm)B1 A1 thetra strain and the model have 6 wheels'.B1 (chr)C2C37 (cm)B1 (cm)B2 (cm)B1 (cm) <td>600 (trays)</td> <td>B2</td> <td></td>	600 (trays)	B2	
Image: Second			
600) $= (.2, 4 \times 100 \text{ (trays)} + 3 \times 25 \text{ (trays)} = 475 \text{ (trays)}$ 8.(a)2 and -18 OR -2 and 18B28.(b)B1 for two integers, one positive and one negative, that satisfy one of the criteria8.(b)2 and -3 and -4B28.(a)B1 for three integers, two of which are negative, that satisfy one of the criteria8.(b)2 and -3 and -49.(a)(4)9.(a)(4)9.(a)(4)9.(b)(4)9.(b)(4)9.(c)A116 transformH9.(b)(4)9.(c)A19.(c)A19.(c)B175 + 75M15 (mm)A1(5 + 10 =) 0.5 (cm)B177 + 750A177 + 750A177 + 750A177 + 750A177 + 750M175 + 7509			
e.g. 4 x 100 (trays) + 3 x 25 (trays) = 475 (trays)(4)8(a)2 and -18 OR -2 and 18B28(b)2 and -3 and -4B28(b)2 and -3 and -4B2B1 for three integers, two of which are negative, that satisfy one of the criteria e.g2 and -3 and 0 -4 and -1 and 09(a) $3 \times 75$ M1225 (cm) oe9(b) 375 ÷ 759(c) (5 ÷ 10 =) 0.5 (cm)A1Ketrnative method: (375 ÷ 75(375 ÷ 75M15 (mm)A1FT 'their 5' ÷ 10. Correct answer implies 3 marks.Alternative method: (375 ÷ 75(375 ÷ 75M15 (cm)A1FT 'their 37.5' FTM1FT 'their 37.5' A1FT 'their 37.5' FTM1FT 'their 37.5' (cm)B1 (c) (cm)B1 (c) (cm)B2 (c) (cm)B1 (c) (cm)B1 (c) (cm)B2 (c) (cm)B2 (c) (cm) <td></td> <td></td> <td></td>			
(4)       (4)         8.(a)       2 and -18 OR -2 and 18       B2       B1 for two integers, one positive and one negative, that satisfy one of the criteria         8.(b)       2 and -3 and -4       B2       B1 for three integers, two of which are negative, that satisfy one of the criteria         8.(b)       2 and -3 and -4       B2       B1 for three integers, two of which are negative, that satisfy one of the criteria         9.(a)       (4)       -2 and -3 and 0       -4 and -1 and 0         9.(a)       (4)       -4 and -1 and 0       -4 and -1 and 0         9.(a)       (4)       If units given, they must be correct.         9.(b)       375 + 75       M1       If no marks, award M1 for an unsupported 2.25.         9.(b)       375 + 75       M1       Correct answer implies 3 marks.         Alternative method:       137.5 + 75       M1         (375 + 10 = ) 0.5 (cm)       B1       FT 'their 37.5'         M1       FT their 37.5'       FT         Alternative method:       14       FT         (375 + 750       M1       FT         M1       FT their 37.5'       FT         M1       FT       FT         Metmative method:       16       FT         (375 + 750       M1       FT			
(4)         8.(a)         2 and -18 OR -2 and 18         B2       B1 for two integers, one positive and one negative, that satisfy one of the criteria         8.(b)       B1 for three integers, two of which are negative, that satisfy one of the criteria e.g2 and -3 and 0         9.(a)       (4)         9.(a)       (4)         9.(b)       (4)         9.(a)       (4)         9.(b)       A1         3x 75       M1         225 (cm) oe       A1         1f units given, they must be correct.         1f no marks, award M1 for an unsupported 2.25.         9.(b)       A1         375 + 75       M1         5 (mm)       A1         65 ÷ 10 = ) 0.5 (cm)       B1         Alternative method:       (375 + 75)         0.5 (cm)       A1         Alternative method:       B1         0.5 (cm)       A1         FT their 37.5'       FT         0.5 (cm)       A1         FT their 37.5'       FT         9.(c)       Valid explanation explaining the scale factor can be used for finding lengths or that the number of wheels remains the same e.g.         Not the train and the model have 6 wheels'.       FT         Number of wheel			
8.(a) 2 and -18 OR -2 and 18B2B1 for two integers, one positive and one negative, that satisfy one of the criteria8.(b) 2 and -3 and -4B2B1 for three integers, two of which are negative, that satisfy one of the criteria e.g2 and -3 and 0 -4 and -1 and 0(4)(4)9.(a) $3 \times 75$ M1225 (cm) oeA19.(b) $375 \div 75$ M15 (mm)A15 (mm)A1(5 ÷ 10 =) 0.5 (cm)B1Alternative method: $(375 \div 75$ $375 \div 75$ M15 (mm)B1FT 'their 5' + 10. Correct answer implies 3 marks.Alternative method: $(375 \div 75$ $37.5 \div 75$ $37.5 + 75$ M1FT 'their 37.5'Alternative method: $(375 \div 750$ $75 \div 750$ M1FT 'their 37.5'Alternative method: $1 cm = 750mm$ $75 \div 750$ $0.5 (cm)$ A1FTNo = used of rinding lengths or that the number of wheels remains the same e.g. Both the train and the model have 6 wheels'.B0th the train and the model have 6 wheels'.B1Pit heratio is only used for scaling lengths (not numbers of things).'		(4)	(iiays)
2 and -18 OR -2 and 18       B2       B1 for two integers, one positive and one negative, that satisfy one of the criteria         8.(b)       2 and -3 and -4       B2       B1 for three integers, two of which are negative, that satisfy one of the criteria e.g2 and -3 and 0 -4 and -1 and 0         9.(a)       (4)         9.(a)       (4)         9.(b)       M1         3x 75       M1         225 (cm) oe       A1         9.(b)       If units given, they must be correct.         9.(b)       If no marks, award M1 for an unsupported 2.25.         9.(b)       A1         375 ÷ 75       M1         5 (mm)       A1         (5 ÷ 10 =) 0.5 (cm)       B1         FT their 5' ÷ 10.         Correct answer implies 3 marks.         Alternative method:         (375 + 10 =) 37.5 (cm)         37.5 + 75         0.5 (cm)         A1         FT their 37.5'         0.5 (cm)         A1         Particle science         B1         Valid explanation explaining the scale factor can be used for finding lengths or that the number of wheels remains the same e.g.         B0 the train and the model have 6 wheels'.         B1 the train on only used for scaling lengths	8 (a)	()	
8.(b)       Provide a statisty one of the criteria         8.(b)       B1 for three integers, two of which are negative, that satisfy one of the criteria         2 and -3 and -4       B2         8.(b)       B1 for three integers, two of which are negative, that satisfy one of the criteria         e.g2 and -3 and 0       -4 and -1 and 0         (4)       (4)         9.(a)       X 75         X 75       M1         225 (cm) oe       A1         9.(b)       If units given, they must be correct.         9.(b)       If no marks, award M1 for an unsupported 2.25.         9.(b)       A1         5 (mm)       A1         (5 ÷ 10 =) 0.5 (cm)       B1         Alternative method:       Correct answer implies 3 marks.         (375 ÷ 10 =) 37.5 (cm)       B1         37.5 ÷ 75       M1         Alternative method:       There is 37.5'         0.5 (cm)       A1         FT       Their 37.5'         9.(c)       A1         Valid explanation explaining the scale factor can be used for finding lengths or that the number of wheels'.         9.(c)       Valid explanation explaining the scale factor can be used for finding lengths or that the endels'.         19 profee superfluous statements.       e.g. 'It doesn't m	2 and –18 OR –2 and 18	B2	B1 for two integers, one positive and one
2 and -3 and -4B2B1 for three integers, two of which are negative, that satisfy one of the criteria e.g2 and -3 and 0 -4 and -1 and 0(4)(4)9.(a) $3 \times 75$ (4)225 (cm) oeA19.(b) $375 \div 75$ M15 (mm)A15 (mm)A1(5 $\div 10 = ) 0.5$ (cm)A1Alternative method: $(375 \div 75$ B1 $M1$ 7.5 $\div 75$ M15 (mm)A1B1FT 'their 5' $\div 10.$ Correct answer implies 3 marks.Alternative method: $(375 \div 75)$ B1 $M1$ 7.5 $\div 75$ B1 $M1$ Alternative method: $(375 \div 75)$ B1 $M1$ 7.5 $\div 75$ B1 $M1$ 7.5 $\div 75$ B1 $M1$ Alternative method: $(375 \div 75)$ B1 $M1$ 7.5 $\div 75$ B1 $M1$ 6.5 (cm)A1 $FT$ 9.(c)B1 Valid explanation explaining the scale factor can be used for finding lengths or that the number of wheels'.9.(c)Valid explanation explaining the scale factor can be used for finding lengths or that the number of wheels.'13 bit the train and the model have 6 wheels'.'Wheels'.The ratio is only used for scaling lengths (not numbers of things).'B1 (not numbers of things).'			
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9.(b)M1 $375 \div 75$ M1 $5 \text{ (mm)}$ A1 $(5 \div 10 =) 0.5 \text{ (cm)}$ B1 $(5 \div 10 =) 37.5 \text{ (cm)}$ B1 $37.5 \div 75$ B1 $0.5 \text{ (cm)}$ B1 $A1ternative method:$ B1 $(375 \div 10 =) 37.5 \text{ (cm)}$ B1 $37.5 \div 75$ M1 $0.5 \text{ (cm)}$ B1 $A1ternative method:$ B1 $1 \text{ cm} \equiv 750 \text{ cm}$ B1 $375 \div 750$ M1 $0.5 \text{ (cm)}$ B1 $0.5 \text{ (cm)}$ B1 $9.(c)$ Valid explanation explaining the scale factor can be used for finding lengths or that the number of wheels remains the same e.g.B0 th the train and the model have 6 wheels'.E1Accept other correct statements. e.g. 'It doesn't make sense to multiply wheels by length of 75'.'The ratio is only used for scaling lengths (not numbers of things).'			
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Alternative method:       B1         (375 ÷ 10 = ) 37.5 (cm)       B1         37.5 ÷ 75       M1         0.5 (cm)       A1         Alternative method:       A1         1cm = 750mm       B1         375 ÷ 750       M1         0.5 (cm)       B1         0.5 (cm)       B1         0.5 (cm)       B1         0.5 (cm)       B1         9.(c)       Valid explanation explaining the scale factor can be used for finding lengths or that the number of wheels remains the same e.g.         'Both the train and the model have 6         wheels'.         'The ratio is only used for scaling lengths (not numbers of things).'			
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Alternative method:       1cm = 750mm       B1       Units may be implied in further working.         375 ÷ 750       M1       FT 'their 750'.         0.5 (cm)       A1       FT         9.(c)       Valid explanation explaining the scale factor can be used for finding lengths or that the number of wheels remains the same e.g.       E1       Accept other correct statements e.g. 'There will still be 6 wheels.'         'Both the train and the model have 6 wheels'.       Ignore superfluous statements.       e.g. 'It doesn't make sense to multiply wheels by length of 75'.         'The ratio is only used for scaling lengths (not numbers of things).'       K       K	37.5 ÷ 75		FT 'their 37.5'
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Valid explanation explaining the scale factor can be used for finding lengths or that the number of wheels remains the same e.g. 'Both the train and the model have 6 wheels'. 'The ratio is only used for scaling lengths (not numbers of things).'		A1	
can be used for finding lengths or that the number of wheels remains the same e.g. 'Both the train and the model have 6 wheels'. 'The ratio is only used for scaling lengths (not numbers of things).'			Accord other correct statements a r (There will
number of wheels remains the same e.g. 'Both the train and the model have 6 wheels'. 'The ratio is only used for scaling lengths (not numbers of things).'		EI	
Both the train and the model have 6 wheels'. 'The ratio is only used for scaling lengths (not numbers of things).'			
wheels'. 'The ratio is only used for scaling lengths (not numbers of things).'			
'The ratio is only used for scaling lengths (not numbers of things).'			
(not numbers of things).'			
······	(not numbers of things).'		
		(6)	

10 (2)		1
10.(a) $35 \times (\pounds)20 = (\pounds)700$	B1	
10.(b)(i) (£)700 + (38 – 35) × (£)20 × 1.5 oe	M1	e.g. $700 + 3 \times 30$ or $700 + 4.5 \times 20$ or $38 \times 20 + 3 \times 20 \times 0.5$
(£)790	A1	
10.(b)(ii) (£)1060 – (£)700 oe	M1	
(£)360 360 ÷ 30 oe	A1 M1	FT 'their 360' providing M1 awarded and 'their overtime rate' from (b)(i) provided ≠ 20; may be implied by e.g. a build-up method adding 30 until 'their 360' is reached
12 (hours)	A1	FT
		If no marks, award SC2 for an answer of 18 (from $1060 \div 20 = 53$ , leading to $53 - 35$ )
10.(c)(i) $\frac{6}{100} \times (\pounds)700 = 42 (> 35)$ OR £1 per hour extra and $\frac{1}{20} = \frac{5}{100} = 5\% (< 6\%)$ oe OR $\frac{35}{700} = \frac{5}{100} = 5\% (< 6\%)$ oe OR 10% (of £700) = (£)70 5% (of £700) = (£)35, increase is 5% (< 6%) OR $\frac{6}{100} \times (\pounds)20 = 1.2(0) (> 1)$ with sight of £1 per hour extra	B2	B1 for any one of the following: • $\frac{6}{100} \times (f)700$ • £1 per hour extra • $\frac{35}{700}$ Oe
10.(c)(ii) Valid explanation e.g. 'She might have been earning a lot less per hour than Nico before the pay increase.'	E1	<ul> <li>Allow e.g. 'It would be true if she was earning the same as Nico.'</li> <li>'Dana might not have the same (initial) pay as Nico'.</li> <li>'It depends on what they were earning initially'.</li> <li>Accept examples which show Dana's statement might not be correct e.g. Dana's initial pay = £500.</li> <li>E0 for reference to only overtime.</li> </ul>

44		Table token presedence
11. 1 – 0.75 – 0.1 oe	M1	Table takes precedence. May be seen in stages
1 - 0.75 - 0.10e		May be seen in stages
0.15	A1	
0.10		If no marks, award SC1 for an answer of 0.24.
	(2)	
12.(a)	(2)	
-3, -1	B2	B1 for each
12.(b)		
Correct line from at least	B2	Mark intention of straight-line.
(-1, -5) to $(1, 3)$		B1 for correct truncated line (at least the length of
		2 points)
		OR Í
		B1 FT for 4 or 5 points plotted correctly (using
-2		their table of values)
-1 -05 0 05 1 -x		
-2		
×		
	(4)	
13.	(-)	
Kit's position found correctly:	B2	Tolerances: ±2 mm, ±2°
6 cm from S	02	
bearing 160° from S		B1 for a correct distance or bearing
Correct distance from T	B2	Tolerances: ±4 m, ±2°
Correct bearing from T		
		FT 'their position of Kit';
		if correct position of Kit, 150 m and 200°.
		B1 for either a correct distance or correct bearing
	(4)	
14.(a)		
$\frac{9}{14} - \frac{2 \times 2}{7 \times 2}  \text{Oe}$	M1	Correct use of a common denominator
		e.g. $\frac{9 \times 7}{14 \times 7} - \frac{2 \times 14}{14 \times 7} (= \frac{35}{98}$ ISW)
5		
<u>-</u> 14 Oe	A1	ISW
14.(b)		10 2
$\frac{2}{13}$	B2	B1 for sight of $\frac{10}{65}$ or $\frac{2}{13} \times 1$
13		65 13
	(4)	
15.		
$(£)4200 \times \frac{2}{100} \times 5$ oe	N 4 4	
100	M1	
(£)420	A1	
(£)4620	B1	FT 4200 + 'their 420', provided M1 awarded
		If no marks award SC1 for sight of 84
	(3)	

16.		
180 - (360 ÷10) or $(180 \times (10 - 2)) \div 10$	M2	May be in stages
		M1 for one of the following:
		• 360 ÷ 10
		• 36(°)
		• 180 × (10 – 2)
		• 1440(°)
144(°)	A1	
	(3)	
17. 5 × 4.2 – (3.6 + 3.4 + 2.9 + 5.1) oe	M2	May be in stages
		M1 for total mass = $5 \times 4.2$ (= 21)
		or for $\frac{3.6 + 3.4 + 2.9 + 5.1 + \dots}{5} = 4.2$ oe
		5
6 (kg)	A2	A1 for sight of 21 or for correct answer to
	,	'their derived 21' – 'their 15' provided at least M1
		awarded.
	(4)	
18.(a)	, , ,	
Correct triangle with coordinates:	B2	B1 for:
(-1, 4), (-6, 3), (-3, 1)		• 3 points correctly plotted but not joined,
		• a triangle with 2 points correctly plotted,
18.(b)		• a correct reflection in $y = k, k \neq 4$ .
Correct triangle with coordinates	B2	B1 for:
(5, 4), (0, 5), (3, 7)		3 points correctly plotted but not joined,
		• a triangle with 2 points correctly plotted,
		• a translation $\binom{6}{m}$ , $m \neq 0$ ,
		• a translation $\binom{n}{0}$ , $n \neq 6$ ,
		• a translation $\binom{0}{6}$ .
		Treat translation of triangle <i>B</i> as a misread and
		award B1 for (5, 4) (0, 3) (3, 1).
		FT 'their triangle $B'$ .

19. 240 × 2.5	M1	
600 (Canadian dollars)	A1	
162 000 ÷ 81	M1	
2000 (Canadian dollars)	A1	
2000 - 600 = 1400 (> 1000)	B1	FT 'their 2000' and 'their 600' provided M1 M1 awarded. Ignore units
Alternative method $240 \times 2.5$	M1	
	1711	
600 (Canadian dollars)	A1	
162 000 – 600 × 81	M1	FT 'their 600'
113 400	A1	FT
Correct complete comparison e.g. 113 400 > 81 000 or 1400 (> 1000)	B1	FT 'their derived 113 400' provided M1 M1 awarded. Ignore units
	(5)	

20.*(a) Second and third statements indicated and no others	B2	<ul> <li>Award B1 for one of the following:</li> <li>One correct statement and up to one incorrect statement indicated</li> <li>Two correct statements and exactly one incorrect statement indicated</li> </ul>
20.(b)		May be done in parts
(Area of cross-section = ) $\frac{1}{2} \times 3x \times x$	M1	Accept ½ base x height oe
(Volume = ) $\frac{1}{2} \times 3x \times x \times 4$	M1	FT 'their $\frac{1}{2} \times 3x \times x' \times 4$ , provided at least two terms in <i>x</i> .
$\frac{1}{2} \times 3x \times x \times 4 = 216$ oe	A1	CAO
$x^2 = 216 \times 2 \div 4 \div 3 (= 36)$	M1	FT 'their $k \times x^2 = 216$
6 (cm)	A1	Mark final answer. FT Final 2 marks can be awarded if trials used on an equation of the form 'their $k \times x^2 = 216$ to find a correct or correct FT answer. If $x^2$ is a square number, <i>x</i> must be given as a whole number. Otherwise, it may be written as an unsimplified surd.
Alternative method		
(Area of cross-section = ) $216 \div 4$ (=54)	B1	
(Area of cross-section = ) $\frac{1}{2} \times 3x \times x$	M1	Accept ½ base x height oe
$\frac{1}{2} \times 3x \times x = 54$ oe,	A1	CAO
$x^2 = 54 \times 2 \div 3 (= 36)$	M1	FT 'their $k' \times x^2$ = 'their 54'
6 (cm)	A1	Mark final answer. FT Final 2 marks can be awarded if trials used on an equation of the form 'their $k' \times x^2$ = 'their 54' to find a correct or correct FT answer If $x^2$ is a square number, x must be given as a whole number. Otherwise, it may be written as an unsimplified surd.
		If no marks award SC3 for a complete correct method using trials leading to an answer of 6 OR SC2 for a correct trial with height > 3, e.g. $\frac{1}{2} \times 15 \times 5 \times$ 4 (and comparison with 216) si OR a correct trial with height > 3. e.g. $\frac{1}{2} \times 15 \times 5$ and comparison with 54 si

21.*(a)		
$1 \le \text{time difference} \le 3$	B2	Not from wrong working
		B1 for one end correct in the inequality or for sight of both values
21.(b)		Accept a statement such as 'The van is always less than 6 m long/the maximum length acceptable' stated once only; may be written anywhere If lengths are given, they must be within the appropriate limits.
Valid example for may be correct e.g. Van 590 cm AND trailer 198 cm	E1	For the van accept any statement such as 'The van is always less than 6 m long/the maximum length acceptable' or any values satisfying: $585 \text{ cm} \le \text{length}$ of the van < $595 \text{ cm}$ $\underline{AND}$ 195 cm $\le \text{length}$ of the trailer $\le 200 \text{ cm}$ Allow e.g. 'The trailer could be less than 200 (cm).' Example might use the values given in the question (590 cm and 200 cm) and not consider the values are rounded to the nearest 10 cm.
Valid example for may not be correct e.g. (Van 590 cm and) trailer 201 cm	E1	(For the van accept any statement such as 'The van is always less than 6 m long' or any values satisfying: 585 cm ≤ length of the van < 595 cm AND) 200 cm < length of the trailer < 205 cm Allow e.g. 'The trailer could be more than 200 (cm)/the maximum length acceptable' or 'the length of the trailer could be 205 (cm)'.
	(4)	
22.*(a)		
$600000 \div 20 \text{ or } (6 \times 10^5) \div (2 \times 10)$	M1	
$3 \times 10^4$	A1	<ul> <li>Award M1 A0 for any one of the following:</li> <li>30 000</li> <li>0.3 × 10<sup>5</sup></li> </ul>
22.(b) 60 × 3 × 10 <sup>8</sup> oe	M1	e.g. 300 000 000 × 60
180 × 10 <sup>8</sup> or 18 000 000 000 oe	A1	CAO
$1.8(0) \times 10^{10}$ (litres per hour)	A1	FT 'their $60 \times 3 \times 10^8$ ', provided M1 awarded.
	(5)	If no marks, award SC1 for $5 \times 10^6$
23.*(a)	(5)	
55	B1	
23.(b) $5n-1$ or $-1+5n$	B2	<ul> <li>Mark final answer</li> <li>B1 for:</li> <li>5n + k, where k ≠ -1</li> <li>a correct answer seen and then spoiled.</li> <li>an unsimplified expression which would lead to 5n -1</li> </ul>
		Allow the use of other variables for <i>n</i> for B1 or B2

24.*(a) 9.6 ÷ 12 (= 0.8) 0.8 ÷ 8 × 3	M1 M1	FT 'their 0.8' including place value error from conversion of kg to g
0.3 (kg) or 300g	A1	CAO
Alternative method 88:3:5 $\frac{3}{88+3+5} \times 9.6$	B1 M1	
0.3 (kg) or 300g	A1	CAO
24.(b) (Total force = ) 1600 × 0.1 160 (N)	M1 A1	
24.(c) Valid impact e.g. 'The force would be less'	E1	Ignore any extraneous comments e.g. 'The pressure would increase, and the force will be lower'.
	(6)	
25.* $\frac{1008}{60} \times 100  \text{or}  \frac{1008}{0.6(0)}$ or $\frac{1008}{6} \times 10  \text{or}  \frac{10080}{6}  \text{oe}$	M2	M1 for one of the following: • $\frac{1008}{6}$ (=168) (Calculating 10% of original value) • $\frac{1008}{60}$ (=16.8) (Calculating 1% of original value) • $0.6 \times x = 1008$ oe
(£)1680(.00)	A1 (3)	

26.*(a)		
$\frac{20}{15x^2 + 21x - 20x - 28}$	B2	B1 for any three terms correct. $mx^2 + x + n$ implies middle two terms correct if not from wrong working
$15x^2 + x - 28$	B1	Mark final answer. Implies previous B2. FT their expression, provided it is a quadratic with 4 terms to consider and there are like terms to collect.
26.(b)(i)	Ι	
2xy(x+6y)	B3	Mark final answer. B2 for any one of the following: • A correct answer seen then spoiled • $2x(xy + 6y^2)$ • $2y(x^2 + 6xy)$ • $xy(2x + 12y)$ • $2xy(x + my)$ where $m \neq 0$ or $m \neq 6$ • $2xy(nx + 6y)$ where $n \neq 1$ or $n \neq 0$ B1 for any one of the following: • $2(x^2y + 6xy^2)$ • $x(2xy + 12y^2)$ • $y(2x^2 + 12xy)$ • $2x(xy + my^2)$ where $m \neq 0$ or $m \neq 6$ • $2y(x^2 + mxy)$ where $m \neq 0$ or $m \neq 6$ • $xy(2x + my)$ where $m \neq 0$ or $m \neq 6$ • $xy(2x + my)$ where $m \neq 1$ or $n \neq 0$ • $2y(nx^2 + 6xy)$ where $n \neq 1$ or $n \neq 0$ • $xy(nx + 12y)$ where $n \neq 1$ or $n \neq 0$ • $2xy(nx + 12y)$ where $n \neq 1$ or $n \neq 0$
		- <i>Luy</i> ( ' <i>Gy</i> )
26.(b)(ii)		·
(x-8)(x+8)	B1	
 	(7)	

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