

Q1. (2017)

11	Alternative method 1		
	18 (hours) or 36 (half hours) or 24 (minutes per hour)	B1	their hours $\times 2 \times 12$ implies 24
	18 $\times 2 \times 12$ or 18 $\times 24$ or their hours $\times 2 \times 12$ or their hours $\times 24$ or 36 $\times 12$ or their half hours $\times 12$	M1	oe
	432	A1	Ignore fw in an attempt to convert 432 minutes to hours and minutes
	Alternative method 2		
	Build up method using 12 minutes or 24 minutes with at least three additions	M1	
	36 additions using 12 minutes or 18 additions using 24 minutes	M1dep	
	432	A1	Ignore fw in an attempt to convert 432 minutes to hours and minutes

11 cont	Additional Guidance	
	7 hours 12 minutes with 432 in working	B1M1A1
	7.2 hours or 7 hours 20 minutes with 432 in working	B1M1A1
	18 hours 18 $\div 2 = 9$ (half hours) 9 $\times 12$ 108	B1M1A0
	7 hours 12 minutes without 432 in working	B1M1A0
	7.2 hours without 432 in working	B1M1A0
	their hours $\times 2 \times 12$ implies 24 eg 2 2 2 2 2 2 (6 hours, 12 half hours)) 12 $\times 12$ 144	B1M1A0
	Condone division of their number of hours by 2 to imply an attempt to calculate their number of half hours eg 10 hours 10 $\div 2 = 5$ (half hours) 5 $\times 12$ 60	B0M1A0

Q2. (2017)

18	Alternative method 1 of 6 – cost per hour		
	3.6(0) ÷ 8 or (0).45 or 2.94 ÷ 6 or (0).49	M1	360 ÷ 8 or 45 or 294 ÷ 6 or 49
	their (0).45 ÷ 5 or (0).09 or their (0).49 ÷ 5.5 or (0).08(9...)	M1dep	their 45 ÷ 5 or 9 or their 49 ÷ 5.5 or 8.(9...)
	their (0).45 ÷ 5 and their (0).49 ÷ 5.5	M1dep	their 45 ÷ 5 and their 49 ÷ 5.5
	(£)0.09 and (£)0.08(9...)	A1	9(p) and 8.(9...) (p)
	brand B	A1ft	ft correct decision for their values with M3 scored
	Alternative method 2 of 6 – cost per hour from price of pack		
	8 × 5 or 40 or 6 × 5.5 or 33	M1	
	3.6(0) ÷ their 40 or (0).09 or 2.94 ÷ their 33 or (0).08(9...)	M1dep	360 ÷ their 40 or 9 or 294 ÷ their 33 or 8.(9...)
	3.6(0) ÷ their 40 and 2.94 ÷ their 33	M1dep	360 ÷ their 40 and 294 ÷ their 33
	(£)0.09 and (£)0.08(9...)	A1	9(p) and 8.(9...) (p)
	brand B	A1ft	ft correct decision for their values with M3 scored

18 cont	Alternative method 3 of 6 – number of hours per unit cost from number of batteries		
	3.6(0) ÷ 8 or (0).45 or 2.94 ÷ 6 or (0).49	M1	360 ÷ 8 or 45 or 294 ÷ 6 or 49
	5 ÷ their (0).45 or 11.1(...) or 5.5 ÷ their (0).49 or 11.2(...)	M1dep	5 ÷ their 45 or (0).111(...) or 5.5 ÷ their 49 or (0).112(...)
	5 ÷ their (0).45 and 5.5 ÷ their (0).49	M1dep	5 ÷ their 45 and 5.5 ÷ their 49
	11.1(...) (hours) and 11.2(...) (hours)	A1	(0).111(...) (hours) and (0).112(...) (hours)
	brand B	A1ft	ft correct decision for their values with M3 scored
	Alternative method 4 of 6 – common number of batteries		
	Scaling towards a cost for a common number of batteries (eg 24 batteries) eg 8 × 3 × 5 or 120 and 6 × 4 × 5.5 or 132	M1	
	eg 3 × 3.60 or 10.8(0) and 4 × 2.94 or 11.76	M1	eg 3 × 360 or 1080 and 4 × 294 or 1176
	eg their 10.8(0) ÷ their 120 or (0).09 and their 11.76 ÷ their 132 or (0).08(9...)	M1dep	eg their 1080 ÷ their 120 or 9 and their 1176 ÷ their 132 or 8.(9...) dependent on M1M1
	(£)0.09 and (£)0.08(9...)	A1	9(p) and 8.(9...) (p)
	brand B	A1ft	ft correct decision for their values with M3 scored

18 cont	Alternative method 5 of 6 – number of hours per unit cost from batteries per unit cost		
	8 ÷ 3.6(0) or 2.2(...) or 6 ÷ 2.94 or 2.04(...)	M1	8 ÷ 360 or 0.022(...) or 6 ÷ 294 or 0.0204(...)
	their 2.2(...) × 5 or 11.1(...) or their 2.04(...) × 5.5 or 11.2(...)	M1dep	their 0.022(...) × 5 or 0.111(...) or their 0.0204(...) × 5.5 or 0.112(...)
	their 2.2(...) × 5 and their 2.04(...) × 5.5	M1dep	their 0.022(...) × 5 and their 0.0204(...) × 5.5
	11.1(...) (hours) and 11.2(...) (hours)	A1	(0).111(...) (hours) and (0).112(...) (hours)
	brand B	A1ft	ft correct decision for their values with M3 scored
	Alternative method 6 of 6 – cost for common number of battery hours		
	3.6(0) ÷ 8 or (0).45 or 2.94 ÷ 6 or (0).49	M1	360 ÷ 8 or 45 or 294 ÷ 6 or 49
	Scaling towards a common number of battery hours (eg 55 hours) eg their (0).45 × 11 or their (0).49 × 10	M1dep	eg their 45 × 11 or their 49 × 10
	eg their (0).45 × 11 and their (0).49 × 10	M1dep	eg their 45 × 11 and their 49 × 10
	eg (£)4.95 and (£)4.9(0)	A1	eg 495(p) and 490(p)
	brand B	A1ft	ft correct decision for their values with M3 scored

18 cont	Additional Guidance	
	For the first A mark the values must not be rounded to the same value	
	A1ft can be awarded after A0 for the same value for the correct decision eg 0.09 and 0.09 with decision 'both the same'	M3A0A1ft
	8 × 5 = 40 and 40 ÷ 3.6(0) and 6 × 5.5 = 33 and 33 ÷ 2.94 is equivalent to 8 ÷ 3.6(0) × 5 and 6 ÷ 2.94 × 5.5 on Alt 5	M3
	8 × 5 = 40 and 40 ÷ 3.6(0) is equivalent to 8 ÷ 3.6(0) × 5 on Alt method 5	M2
	6 × 5.5 = 33 and 33 ÷ 2.94 is equivalent to 6 ÷ 2.94 × 5.5 on Alt method 5	M2
	(0).45 ÷ 5	M1M1
	(0).45 ÷ 5 and (0).49 ÷ 5.5	M1M1M1
	(0).45 ÷ 5 and (0).415 ÷ 5.5 0.415 is not from a correct method	M1M1M0
	In Alt method 4 M1M1 can be awarded in either order	
	In Alt method 5 their 2.2(...) must be correct or from correct method their 2.04(...) must be correct or from correct method	
	Accept misread of 4 batteries (A) or 3 batteries (B) for up to M3A0A1ft	
	Accept working with minutes eg in Alt method 3 for 2 nd M1dep accept 300 ÷ 45 = 6.6(...) or 6.7 or 330 ÷ 49 = 6.7(...) for 3 rd M1dep accept 300 ÷ 45 and 330 ÷ 49 for first A mark must see 6.6(...) or 6.67 and 6.7(...) or 6.7 and 6.73(...)	

Q3. (2017)

21	Alternative method 1		
	Any correct scaling of the ratio 5 : 2 eg 10 (:) 4 or 20 (:) 8 or 25 (:) 10	M1	oe
	22.5 (:) 9 or 22.5 (red) or 30 (:) 12 or 12 (blue)	M1dep	oe
	31.5 or $31\frac{1}{2}$ or $\frac{63}{2}$	A1	
	Alternative method 2		
	$9 + 2$ or 4.5 or $30 \div 5$ or 6	M1	oe $2 + 9$ or 0.22... $5 + 30$ or 0.16... or 0.17
	$5 \times$ their 4.5 or 22.5 or $7 \times$ their 4.5 or $2 \times$ their 6 or 12 or $7 \times$ their 6 or 42	M1dep	oe
	31.5 or $31\frac{1}{2}$ or $\frac{63}{2}$	A1	
	Alternative method 3		
	$\frac{2}{7} \times$ purple = blue $\frac{5}{7} \times$ purple = red	M1	oe $\frac{2}{7} \times$ purple = 9 $\frac{5}{7} \times$ purple = 30
	$9 \times \frac{7}{2}$ or $30 \times \frac{7}{5}$ or 42	M1dep	oe
	31.5 or $31\frac{1}{2}$ or $\frac{63}{2}$	A1	

21 cont	Additional Guidance	
	$28 + 3.5 = 31.5$	M1M1A1
	$28 + 3.5$	M1M1A0
	31.5, answer 31	M1M1A1
	$31.5 + 42 = 73.5$	M1M1A0
	10 4	M1M0A0
	10, 4	M1M0A0
	$10 + 4$	M1M0A0
	'He has 2.5 times more red than blue'	M1M0A0
	2.5 : 1	M1M0A0
	2.5	M0M0A0
	28 on its own	M0M0A0

Q4. (2018)

(A)

12(a)	Alternative method 1		
	512 ÷ 743 or 0.6 or 0.68... or 0.69 or 758 ÷ 1065 or 0.7 or 0.71...	M1	oe
	0.6 or 0.68... or 0.69 and 0.7 or 0.71... and Week 2	A1	
	Alternative method 2		
	512 ÷ 231 or 2.2 or 2.21... or 2.22 or 758 ÷ 307 or 2.4 or 2.46... or 2.47 or 2.5	M1	oe
	2.2 or 2.21... or 2.22 and 2.4 or 2.46... or 2.47 or 2.5 and Week 2	A1	
	Alternative method 3		
	$\frac{512}{743}$ or $\frac{758}{1065}$	M1	$\frac{512}{231}$ or $\frac{758}{307}$
	$\frac{545280}{791295}$ and $\frac{563194}{791295}$ and Week 2	A1	$\frac{157184}{70917}$ and $\frac{175098}{70917}$ and Week 2

12(a) cont	Additional Guidance	
	Accept working in percentages	
	Proportions can be calculated using reciprocals in both Alternative method 1 and Alternative method 2 eg 231 ÷ 512	
	60(%) or 68(%) or 69(%) or 70(%) or 71(%)	M1
	(10% = 74.3 followed by) $\frac{512}{74.3} \times 10$ or (10% = 106.5 followed by) $\frac{758}{106.5} \times 10$ is oe for Alternative method 1	M1

(B)

12(b)	396 × 3.74 or 1481.04 or 164 × 5.29 or 867.56 or 362 × 0.51 or 184.62 or 143 × 0.04 or 5.72	M1	oe Week 2 profit on 10-inch pizzas Week 2 profit on 12-inch pizzas Week 2 loss on 10-inch pizzas Week 2 loss on 12-inch pizzas
	their 1481.04 + their 867.56 or 2348.6(0) or their 184.62 + their 5.72 or 190.34 or their 1481.04 – their 184.62 or 1296.42 or their 867.56 – their 5.72 or 861.84	M1dep	oe Week 2 profit for both pizzas Week 2 loss for both pizzas Week 2 profit – loss on 10-inch pizzas Week 2 profit – loss on 12-inch pizzas
	their 2348.6(0) – their 190.34 or their 1296.42 + their 861.84 or 2158.26	M1dep	Total week 2 profit from total profit – total loss
	(£)87.71 or (£)262.71 and Yes or (£)1983.26 and Yes or (£) 2158.26 and (£)2070.55 and Yes	A1	Total week 2 profit – (total week 1 profit + cost of adverts) Total week 2 profit – total week 1 profit Total week 2 profit – cost of adverts Condone eg £87.71p

12(b) cont	Additional Guidance	
	Accept use of inequality sign or words to imply "Yes" in final answer	
	Accept –184.62 and –5.72 for first M1	
	Accept working in pence to calculate losses for M1	
	2070.55 is total week 1 profit + cost of adverts	
	Answer of (£)87.71 does not require "Yes" to be stated as the advert cost has been subtracted	M1M1M1A1

Q5 . (2019)

10	Alternative method 1	
	180 ÷ 3 or 60	M1
	90 – their 60 or 30	M1dep
	180 – 65 – their 30	M1dep
	85	A1
	Alternative method 2	
	90 – 65 or 25	M1
	180 – 2 × (90 – 65) or 2 × 65 or 180 – 2 × their 25 or 130	M1dep
	(360 – (180 ÷ 3) – their 130) ÷ 2 or 170 ÷ 2	M1dep
	85	A1
	Additional Guidance	
	Correct angles could be marked on diagram	
	85 on answer line with no working or angles marked on diagram	M1M1M1A1
	60, 30, 25 or 130 on answer line with no working and not marked correctly on diagram	M0
	On Alt 1, 60 with no working and incorrectly marked on diagram	M0

Q6. (2021)

Q	Answer	Mark	Comments
10	Alternative method 1		
	3.25 ÷ 25 or 0.13 or 325 ÷ 25 or 13 or 5 ÷ (2 × 25) or 5 ÷ 50 or 0.1(0) or 500 ÷ (2 × 25) or 500 ÷ 50 or 10	M1	oe cost of a chocolate in a single box cost of a chocolate from special offer
	3.25 ÷ 25 – 5 ÷ (2 × 25) or their 0.13 – their 0.1(0) or 0.03 or 325 ÷ 25 – 500 ÷ (2 × 25) or their 13 – their 10	M1dep	oe their 0.13 and their 0.1(0) must come from correct methods their 13 and their 10 must come from correct methods
	3	A1	condone £0.03 on answer line
	Alternative method 2		
	2 × 3.25 – 5 or 6.5(0) – 5 or 1.5(0) or 2 × 325 – 500 or 650 – 500 or 150	M1	difference in cost of two boxes
	their 1.5(0) ÷ (2 × 25) or 0.03 or their 150 ÷ (2 × 25)	M1dep	oe 1.5(0) ÷ 50 oe 150 ÷ 50
	3	A1	condone £0.03 on answer line
	Alternative method 3		
	3.25 – 5 ÷ 2 or 3.25 – 2.5(0) or 0.75 or 325 – 500 ÷ 2 or 325 – 250 or 75	M1	difference in cost of one box
	their 0.75 ÷ 25 or 0.03 or their 75 ÷ 25	M1dep	
	3	A1	condone £0.03 on answer line

Q7. (2022)

(A)

Q	Answer	Mark	Comments	
19(a)	Straight line from (0, 0) to (10, 35)	B2	$\pm \frac{1}{2}$ square	
			B1 one correct point $\pm \frac{1}{2}$ square	
			from (2, 7) to (10, 35) seen or plotted or one correct ratio apart from 2 : 7 or one correct pair of amounts apart from 2 juice 7 water	
			Additional Guidance	
			Mark intention	
	If no points plotted, a correct point from (2, 7) to (10, 35) can be implied by a straight line with positive gradient			
	Two points plotted with the same x-coordinate is choice unless the line is drawn through one of the points			
	Condone straight line from (2, 7) to (10, 35)	B2		
	(2, 7) seen with graph not drawn or incorrect	B1		
10 : 35 seen with graph not drawn or incorrect	B1			
6 juice 21 water with graph not drawn or incorrect	B1			

(B)

Q	Answer	Mark	Comments
19(b)	Alternative method 1 – uses the given ratio		
	17.5	B1	
	Alternative method 2 – uses their graph		
	Correct water reading for 5 litres of juice from their straight line	B1ft	$\pm \frac{1}{2}$ square
	Additional Guidance		
	17 or 18 from a correct straight line		B1

Q8. (2022)

Q	Answer	Mark	Comments
27	$330 \div (3 + 2)$ or $330 \div 5$ or 66	M1	oe eg $\frac{330}{5}$
	their 66×2 or 132	M1dep	oe $\frac{2}{5} \times 330$ scores M2
	$294 \div 7$ or 42 or $294 \div 7 \times 3$ or 126	M1	oe eg $\frac{294}{7}$ or $\frac{3}{7} \times 294$
	132 and 126 and A	A1	
	Additional Guidance		
	132 and 88.2 and A		M1M1M0A0

Q9. (2023)

Q	Answer	Mark	Comments
21	Alternative method 1		
	2450 ÷ (2 + 5) or 2450 ÷ 7 or 350	M1	oe
	their 350 × 5 or 1750 or their 350 × 2 or 700 or their 350 ÷ 4 or 87.5(0)	M1dep	oe 2450 × $\frac{5}{7}$ is M2 2450 × $\frac{2}{7}$ is M2 2450 ÷ 28 is M2
	their 1750 ÷ 4 or (2450 – their 700) ÷ 4 or their 87.5(0) × 5 or 437.5(0)	M1dep	oe dep on M2 350 × $\frac{5}{4}$ is M3
	437.5(0) and Yes	A1	accept 437.5(0) > 430
	Alternative method 2		
	2450 ÷ 4 or 612.5(0)	M1	oe
	their 612.5(0) ÷ (2 + 5) or their 612.5(0) ÷ 7 or 87.5(0)	M1dep	oe 2450 ÷ 28 is M2
	their 87.5(0) × 5 or their 612.5(0) – their 87.5(0) × 2 or 437.5(0)	M1dep	oe dep on M2 612.5(0) × $\frac{5}{7}$ is M3
	437.5(0) and Yes	A1	accept 437.5(0) > 430

21 cont	Alternative method 3		
	430 × 4 or 1720	M1	
	2450 ÷ (2 + 5) or 2450 ÷ 7 or 350	M1	oe
	their 350 × 5 or 1750 or their 350 × 2 or 700	M1dep	oe dep on 2nd M 2450 × $\frac{5}{7}$ is M2 2450 × $\frac{2}{7}$ is M2
	1720 and 1750 and Yes	A1	2450 – 1720 = 730 and 700 and Yes
	Alternative method 4		
	430 × 4 or 1720	M1	
	their 1720 ÷ 5 or 344 or their 1720 × 2 or 3440	M1dep	oe
	their 344 × 2 or their 3440 ÷ 5 or 688	M1dep	oe dep on M2 1720 × $\frac{2}{5}$ is M3
	2408 and Yes	A1	
	Additional Guidance		
	Up to M3 may be awarded for correct work, with no answer or incorrect answer, even if this is seen amongst multiple attempts		
	2450 ÷ 7 × 1.25 or 350 × 1.25		M1M1M1
	Yes may be implied eg They receive 7.50 more than 430		M3A1
	Condone £437.50p and Yes		M3A1