

Q1. (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		
	$8 \div 3.6(0)$ or $2.2(\dots)$ or $6 \div 2.94$ or $2.04(\dots)$	M1	$8 \div 360$ or $0.022(\dots)$ or $6 \div 294$ or $0.0204(\dots)$
	their $2.2(\dots) \times 5$ or $11.1(\dots)$ or their $2.04(\dots) \times 5.5$ or $11.2(\dots)$	M1dep	their $0.022(\dots) \times 5$ or $0.111(\dots)$ or their $0.0204(\dots) \times 5.5$ or $0.112(\dots)$
	their $2.2(\dots) \times 5$ and their $2.04(\dots) \times 5.5$	M1dep	their $0.022(\dots) \times 5$ and their $0.0204(\dots) \times 5.5$
	$11.1(\dots)$ (hours) and $11.2(\dots)$ (hours)	A1	$(0).111(\dots)$ (hours) and $(0).112(\dots)$ (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		
	$3.6(0) \div 8$ or $(0).45$ or $2.94 \div 6$ or $(0).49$	M1	$360 \div 8$ or 45 or $294 \div 6$ or 49
	Scaling towards a common number of battery hours (eg 55 hours) eg their $(0).45 \times 11$ or their $(0).49 \times 10$	M1dep	eg their 45×11 or their 49×10
	eg their $(0).45 \times 11$ and their $(0).49 \times 10$	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
	$8 \times 5 = 40$ and $40 \div 3.6(0)$ and $6 \times 5.5 = 33$ and $33 \div 2.94$ is equivalent to $8 \div 3.6(0) \times 5$ and $6 \div 2.94 \times 5.5$ on Alt 5	M3
	$8 \times 5 = 40$ and $40 \div 3.6(0)$ is equivalent to $8 \div 3.6(0) \times 5$ on Alt method 5	M2
	$6 \times 5.5 = 33$ and $33 \div 2.94$ is equivalent to $6 \div 2.94 \times 5.5$ on Alt method 5	M2
	$(0).45 \div 5$	M1M1
	$(0).45 \div 5$ and $(0).49 \div 5.5$	M1M1M1
	$(0).45 \div 5$ and $(0).415 \div 5.5$ 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 $2.2(\dots)$ must be correct or from correct method their $2.04(\dots)$ 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 $300 \div 45 = 6.6(\dots)$ or 6.7 or $330 \div 49 = 6.7(\dots)$ for 3 rd M1dep accept $300 \div 45$ and $330 \div 49$ for first A mark must see $6.6(\dots)$ or 6.67 and $6.7(\dots)$ or 6.7 and $6.73(\dots)$	

Q2. (2019)

14	Alternative method 1		
	$3115 \div 6.23$ or 500	M1	3115×0.028 or 87.22
	their 500×0.028	M1dep	their $87.22 \div 6.23$
	14	A1	
	Alternative method 2		
	$6.23 \div 0.028$ or 222.5	M1	$6.23 \div 3115$ or 0.002 or $\frac{1}{500}$
	$3115 \div$ their 222.5	M1dep	$0.028 \div$ their 0.002 or $0.028 \div$ their $\frac{1}{500}$
	14	A1	
	Alternative method 3		
	$0.028 \div 6.23$ or $0.00449(\dots)$ or 0.0045 or $\frac{2}{445}$	M1	
	$3115 \times$ their $0.00449(\dots)$ or 3115×0.0045 or $3115 \times$ their $\frac{2}{445}$	M1dep	
	14	A1	
	Additional Guidance		
	500×0.028 and 14×0.028		M1M1A0
	500×0.028 and 14^3		M1M1A0
	500×0.028^3		M1M0

Q3. (2019)

24	6 as density for J or K	B1	
	13 as volume for K or $78 \div$ their 6 as volume for K	B1ft	ft their 6
	g/cm^3 as units for densities of J and K and cm^3 as unit for volume of K	B1	allow g cm^{-3}
	Additional Guidance		
	Mark table first		
	Full marks are only awarded for a fully correct table with no errors or omissions		
	13 cm^3 as a volume for K, 0.006 kg/cm^3 for both densities		B1B1B1
	Condone g per cm^3 , gpcm^3 or $\text{g per cubic centimetre}$ as units for density		

Q4. (2021)

Q	Answer	Mark	Comments
7	Alternative method 1		
	217 – 145 or 72	M1	
	their 72 + 59	M1dep	oe eg 72 – –59
	131	A1	
	Alternative method 2		
	217 + 59 or 276	M1	oe eg 217 – –59
	their 276 – 145	M1dep	
	131	A1	
	Additional Guidance		
	M1 may be awarded for correct work, with no or incorrect answer, even if this is seen amongst multiple attempts		
	217 – 145 + 59 or 217 – 86		M1M1
	217 + 145 + 59		M1M0
	217 – 145 – 59		M1M0
	217 – 204 implies 217 – 145		M1M0
	145 – 59 or 86 without further correct working		M0

Q5. (2022)

Q	Answer	Mark	Comments
5(a)	centimetres or millimetres or inches	B1	allow abbreviations eg cm, mm, in
	grams or milligrams or ounces	B1	allow abbreviations eg g, mg, oz
	Additional Guidance		
	Mark intention eg condone ou or incorrect spellings		
	Ignore any numbers with correct units		

Q6. (2023)

Q	Answer	Mark	Comments
4	9.5 × 100 or 950 or 20 ÷ 100 or 0.2 or 2 × 20 ÷ 100 or 0.4	M1	oe 930 implies 950 9.3 implies 0.2
	their 950 – 2 × 20 or their 950 – 40 or 910 or 9.5 – 2 × their 0.2 or 9.5 – their 0.4 or 9.1	M1dep	oe eg 950 – 20 – 20 oe eg 9.5 – their 0.2 – their 0.2
	910 cm or 9.1 m	A1	oe
	Additional Guidance		
	Up to M2 may be awarded for correct work, with no answer or incorrect answer, even if this is seen amongst multiple attempts		
	9m 10 cm on answer line		M1M1A1
	Units may be seen in working but must be seen with the correct value eg 910 on answer line with 910 cm seen in working		M1M1A1
	9.5 – 2 × 20 = 910 centimetres or 9.1 metres		M1M1A1
	9.5 – 2 × 20 = 910 or 9.1		M1M1A0
	Do not ignore further incorrect conversion after correct answer seen eg 910 cm = 91 m		M1M1A0