1		260	P1	conversion to common units of capacity eg 2.2 × 4.54 (= 9.988) **or** 8 ÷ 4.54 (= 1.76...) **OR** **for company A** 2400 ÷ 4.54 (= 528.63...) **OR** 2400 ÷ 8 (= 300) **OR** a rate per minute 8 ÷ [time for Company A] (= 4.8…) oe	[time for Company A] could be 1 min 40 sec or 1.66… or 1.6 or 1.40 etc as long as it is clear it relates to 1 min 40 sec Results of calculations may be truncated or rounded.
			P1	for a complete process to find the time for one water rate in minutes. eg in litres Company A 2400 ÷ "4.8.." (= 500) or "300" × [1 min 40 sec] (= 500) **or** Company B 2400 ÷ "9.988" (= 240.28...) **OR** eg in gallons Company A "528.63.." ÷ ("1.76. .." ÷ [1 min 40 sec]) (= 500) **or** Company B "528.63…" ÷ 2.2 (= 240.28…)	
			P1	for complete processes to find the times for both company A and company B in minutes. Company A eg in litres 2400 ÷ "4.8…" (= 500) or "300" × [1 min 40 sec] (= 500) or in gallons "528.63.." ÷ ("1.76. .." ÷ [1 min 40 sec]) (= 500) **AND** Company B eg in litres 2400 ÷ "9.988" (= 240.28...) or in gallons "528.63…" ÷ 2.2 (= 240.28…)	
			A1	for an answer in the range 259 to 260	If the answer is given within the range but then rounded incorrectly award full marks.

2		400	B1	cao	

3	(b)	explanation	C1	for a valid statement relating to scale factor for area. **Acceptable examples** there are 10000 (cm^2) in 1 (m^2) because 1 m^2 is the same as 100 × 100 = 10000 cm^2 there are 2 side lengths that change from 1 m to 100 cm 300 ÷ 3 is 100 should use 100^2 300 ÷ 100 ÷ 100 = 0.03 3 × 100 × 100 = 30000 Because it's area not length. Because it's in m^2 not just metres He hasn't taken the squared sign into account **Not acceptable examples** there are 1000 cm in 1 m Callum is correct because ……. 300 ÷ 3 is 100 $3^2 = 9$ 300 × 300 = 90000 You have to square the number	

4		No (supported)	P1	for a conversion with litres and gallons, eg 18 ÷ 4.5 (= 4) or 8 × 4.5 (= 36)	See page at end of mark scheme
			P1	for a conversion with £ and euros, eg 27 × 0.85 (= 22.95) or 40.8 ÷ 0.85 (= 48)	
			P1	for finding the unit price, eg 27 ÷ 18 (= 1.5) **OR** finding proportionality for fuel eg ("36" ÷ 18) (= 2)	May compare cost per gallon or cost in euros May be seen in a calculation or given in a description
			C1	for No with comparative figures, eg No with 20.4 **and** 22.95 **or** No with 1.275 **and** 1.133..	Accept comparative figures rounded or truncated No is implied by eg Wales is cheaper

5		108	M1	for 30 × 60 × 60 (108000 metres per hour) **or** 30 ÷ 1000 (= 0.03 kilometres per second) **or** 60 × 60 ÷ 1000 (=3.6 scale factor)	
			A1	cao	

6	(a)	0.008	B1	for 0.008 or 8 × 10^{-3}	May be awarded at any stage
	(b)	50	M1	for conversion from km to m eg 180 × 1000 (= 180 000) **or** for conversion from hours to seconds eg 180 ÷ (60 × 60) (= 0.05) **or** for conversion from km per hour to metres per second, eg 1000 ÷ (60 × 60) (= 0.277...) (Accept (60 × 60) ÷ 1000 (= 3.6))	
			M1	for a complete process eg 180 × 1000 ÷ 3600	
			A1	cao	

7 (b)	9	P1	for a valid start to the process, eg cost of each can, eg 7(.00) ÷ 24 (= 0.2916...) or 700 ÷ 24 (= 29.16...) **or** total volume of 24 cans, eg 330 × 24 (= 7920) **or** proportion of ml, eg 330 ÷ 100 (= 3.3)	Calculations can be in £ or p
		P1	for complete process, eg $\frac{100}{330}$ × "0. 2916..." (= 0.08838...) or $\frac{100}{330}$ × "29.16..." (= 8.838...) **or** $\frac{100}{"7920"}$ × 7(.00) (= 0.08838...) or 7(.00) ÷ 24 ÷ $\frac{330}{100}$ (= 0.08838...) or 7(.00) ÷ $\frac{"7920"}{100}$ (= 0.08838...)	
		A1	for 9	Accept £0.09(p)

8	4	B1	cao	

9	1.3	M1	for working with boxes or bags eg 600 ÷ 120 (= 5) or 1000 ÷ 270 (= 3.7(037..)) 6 ÷ 120 (=0.05) or 10 ÷ 270 (= 0.037(037..))	Cost ÷ quantity For the M marks allow working in £ instead of p.
		M1	for working with bags and boxes where they are working to the same quantities of boxes and bags eg 600 ÷ 120 (= 5) **and** 1000 ÷ 270 (= 3.7(037..)) 6 ÷ 120 (=0.05) **and** 10 ÷ 270 (= 0.037(037..))	Other values are possible where they are using alternative quantities of boxes and bags, but these must be the same quantities of each.
		M1	for finding the difference eg "5" – "3.7(037..)" (= 1.29.. to 1.3) or "0.05" – "0.037(037..))" (= 0.0129.. to 0.013)	Must have consistent units for this mark.
		A1	for answer in the range 1.29 to 1.3	If an answer is given in the range in working and then rounded incorrectly award full marks.

10	65	P1	for a correct process to find the number of seconds, eg 67 205 600 ÷ 11.9 (= 5 647 529.4...) **or** for a correct process to convert between seconds and days, eg 24 × 60 × 60 (= 86 400) oe, may be seen in stages or 11.9 × 60 × 60 × 24 (= 1 028 160)	Note that this mark may be awarded at any stage in the working.
		P1	for a complete process, eg "5 647 529.4..." ÷ "86 400" or 67 205 600 ÷ "1 028 160"	
		A1	accept answers in the range 65 to 65.4 or 66	If a correct answer within the range is shown in working but incorrectly rounded award full marks.