

Q	Answer	Mark	Comments
1	Alternative method 1		
	198×0.45 or 89.1	M1	
	their $89.1 \div 6.25$	M1	their 89.1 must come from a division or multiplication using 198 and 0.45 only
	14.256 or 14.26 or 14.3	A1	SC1 556.875 or 556.88 or 556.9 or 70.4
	Alternative method 2		
	$198 \div 6.25$ or 31.68	M1	
	their 31.68×0.45	M1	their 31.68 must come from a division or multiplication using 198 and 6.25 only
	14.256 or 14.26 or 14.3	A1	SC1 556.875 or 556.88 or 556.9 or 70.4
	Alternative method 3		
	$0.45 \div 6.25$ or 0.072	M1	
	$198 \times$ their 0.072	M1dep	
	14.256 or 14.26 or 14.3	A1	SC1 556.875 or 556.88 or 556.9 or 70.4
	Alternative method 4		
	$6.25 \div 0.45$ or $13.\dot{8}$ or 13.8(...) or 13.9	M1	
	$198 \div$ their $13.\dot{8}$	M1dep	
	14.256 or 14.26 or 14.3	A1	SC1 556.875 or 556.88 or 556.9 or 70.4

1 cont	Additional Guidance	
	$198 \times 0.45 \div 6.25$ oe	M1M1
	$198 \times 0.45 \times 6.25$ (which gives 556.875)	M1M0
	$198 \div 0.45 \div 6.25$ (which gives 70.4)	M0M1
	$198 \div 0.45 \times 6.25$ (which gives 2750)	M0M0
	Do not allow 6.25^2 for 6.25 eg $198 \div 6.25 \div 6.25$	M0
	Ignore rounding or truncation after correct answer seen	

Q	Answer	Mark	Comments
2	Alternative method 1 – compares speeds in m/s		
	$200 \div 24$ or $8.3(3\dots)$	M1	oe eg $\frac{200}{24}$ or $8\frac{1}{3}$
	$28.8 \times 1000 \div 60 \div 60$ or 8	M1	oe eg $28\,800 \div 3600$ or $28.8 \div 3.6$
	8 and $8.3(3\dots)$ and Tom	A1	oe eg 8 and $8\frac{1}{3}$ and Tom
	Alternative method 2 – compares speeds in km/h		
	$200 \div 24$ or $8.3(3\dots)$	M1	oe eg $\frac{200}{24}$ or $8\frac{1}{3}$
	their $8.3(3\dots) \div 1000 \times 60 \times 60$ or 30	M1dep	oe eg $0.0083(3\dots) \times 3600$
	30 and Tom	A1	
	Alternative method 3 – time for Adil starting with m/s		
	$28.8 \times 1000 \div 60 \div 60$ or 8	M1	oe eg $28\,800 \div 3600$
	$200 \div$ their 8 or 25	M1dep	oe eg $\frac{200}{8}$
	25 and Tom	A1	oe eg Tom by 1s
	Alternative method 4 – time for Adil starting with km/h		
	$\frac{200 \div 1000}{28.8}$ or $[0.0069, 0.007]$ or $\frac{200}{28.8}$ or $[6.9, 7]$	M1	oe eg $\frac{0.2}{28.8}$ eg $\frac{125}{18}$
	their $[0.0069, 0.007] \times 60 \times 60$ or their $[6.9, 7] \div 1000 \times 60 \times 60$ or 25	M1dep	oe eg $\frac{0.2}{28.8} \times 3600$
	25 and Tom	A1	oe eg Tom by 1s

Q	Answer	Mark	Comments
2 cont	Alternative method 5 – distance for Adil in 24s		
	28 800 × 24 or 691 200 or 28.8 ÷ 60 ÷ 60 or 0.008 or 28.8 × 24 or 691.2	M1	oe eg $\frac{3456}{5}$
	their 691 200 ÷ 60 ÷ 60 or their 0.008 × 1000 × 24 or their 691.2 × 1000 ÷ 60 ÷ 60 or 192	M1dep	oe eg 28 800 × 24 ÷ 3600
	192 and Tom	A1	
	Additional Guidance		
	Up to M2 may be awarded for correct work, with no or incorrect answer, even if this is seen amongst multiple attempts		
	Ignore all units		
	Allow other correct comparisons eg 500 and 480 (this is metres per minute) eg 500 and 480 and Tom		M1M1 M1M1A1
	200 m = 0.2 km, 24 s = 24 ÷ 60 ÷ 60 = $\frac{1}{150}$ hour, 0.2 ÷ $\frac{1}{150}$ = 30 and Tom		M1M1A1
	$\frac{200 \div 1000}{24} = \frac{1}{120}$ (or 0.0083...)		M1

Q	Answer	Mark	Comments
3	Alternative method 1: works out concrete poured in 30 minutes		
	$10.9 \times 30 \times 60 \div 1000$ or 19.6(2) or $10.9 \times 30 \times 60$ or 19620 and 20×1000 or 20000	M3	oe full method eg $10.9 \times 1800 \div 1000$ or $30 \times 654 \div 1000$ or $19620 \div 1000$ M2 two correct steps eg $10.9 \times 30 \times 60$ or 19620 or $10.9 \times 30 \div 1000$ or 0.327 or $10.9 \times 60 \div 1000$ or 0.654 or $30 \times 60 \div 1000$ or 1.8 M1 one correct step eg 10.9×30 or 327 or 10.9×60 or 654 or $10.9 \div 1000$ or 0.0109 or 30×60 or 1800 or $30 \div 1000$ or 0.03 or $60 \div 1000$ or 0.06 or 20×1000 or 20000
	19.6(2) and No or 19620 and 20000 and No	A1	oe eg 19.62 so it isn't

3 cont	Alternative method 2: works out time for 20 tonnes at given rate		
	$20 \times 1000 \div 10.9 \div 60$ or [30.5, 30.6] or $20 \times 1000 \div 10.9$ or [1834, 1835] and 30×60 or 1800	M3	oe full method eg $20000 \div 10.9 \div 60$ or $20 \times [91.7, 91.74312] \div 60$ or [1834, 1835] $\div 60$ M2 two correct steps eg $20 \times 1000 \div 10.9$ or [1834, 1835] or $20 \times 1000 \div 60$ or 333.(...) or $20 \div 10.9 \div 60$ or [0.0305, 0.031] or $1000 \div 10.9 \div 60$ or [1.52, 1.53] M1 one correct step eg 20×1000 or 20000 or $20 \div 10.9$ or [1.83, 1.835] or $20 \div 60$ or 0.33(...) or $1000 \div 10.9$ or [91.7, 91.74312] or $1000 \div 60$ or [16.6, 16.7] or 10.9×60 or 654 or 30×60 or 1800
	[30.5, 30.6] and No or [1834, 1835] and 1800 and No	A1	oe eg 30.6 so it isn't
	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		
	M3 or M2 will usually be seen in stages eg Alt 1 $10.9 \times 30 = 327$ $327 \times 60 = 19620$ $19620 \div 1000$	M3	
	M2 or M1 may be seen embedded in more than one step (extra steps could be incorrect)		
	No may be indicated by selecting the box or a statement in the working lines		
	No cannot be implied only by an inequality		
	A correct value is sufficient for showing working eg Alt 1 19.62 and No	M3A1	
	Ignore their units throughout		
	Other approaches are possible eg works out rate in kg per s for 20 tonnes in 30 minutes and compares to 10.9		

Q	Answer	Mark	Comments
4	Alternative method 1: population density of Town A		
	84 000 $\div$ (7 $\times$ 2.6) or [4615, 4616]	M2	oe M1 84 000 $\div$ 7 or 12 000 oe or 7 $\times$ 2.6 or 18.2 oe
	Town B and [4615, 4616]	A1	
	Alternative method 2: comparing one square mile of population		
	84 000 $\div$ 7 or 12 000	M1	oe
	4695 $\times$ 2.6 or 12 207	M1	oe
	Town B and 12 000 and 12 207	A1	
	Alternative method 3: comparing seven square miles of population		
	4695 $\times$ 2.6 $\times$ 7 or 85 449	M2	oe M1 4695 $\times$ 2.6 or 12 207 oe or 7 $\times$ 2.6 or 18.2 oe
	Town B and 85 449	A1	
	Alternative method 4: comparing areas with equal populations		
	7 $\times$ 2.6 or 18.2	M1	oe
	84 000 $\div$ 4695 or [17.89, 17.9] or 18	M1	oe
	Town B and 18.2 and [17.89, 17.9] or 18	A1	