Question	Answer	Marks	Guidance
(a)	For attempt at work energy equation	**M1**	3 terms. Allow sign errors. M0 for (constant) acceleration method
	$4500d - 75\,000 = \frac{1}{2}\times 1200\times 25^2$ [= 375 000]	**A1**	Correct equation
	$d = 100$	**A1**	**AG** Accept verification with d substituted in above line to show LHS = 375000 or LHS −RHS = 0 If no marks scored allow SCB1 for $\frac{1}{2}\times 1200\times 25^2$
		3	
(b)	$25^2 = 0 + 2a\times 100$ [leading to $a = 3.125$]	**B1**	Allow B1 if acceleration found in part **(a)** as 3.125 and used or stated here
	$3200 - 1200 = m \times 3.125$	**M1**	Newton's second law with 3 terms. Allow sign errors and *their a*.
	Mass of car B = 640 kg	**A1**	
	Alternative mark scheme for question (b)		
	For attempt at work energy equation	**M1**	3 terms. Allow sign errors.
	$(3200 - 1200) \times 100 = \frac{1}{2}\times m\times 25^2$	**A1**	Correct equation
	Mass of car B = 640 kg	**A1**	
		3	

Question	Answer	Marks	Guidance
(c)	At P power = 3200 × 25 [= 80 000]	**B1**	For use of power = Fv
	$\frac{80000}{v} - 1200 = 0$	**M1**	Attempt Newton's second law for car B with $a = 0$ Allow *their* 80 000 (dimensionally correct)
	Steady speed = 66.7 m s^{-1}	**A1**	Allow $\frac{200}{3} = 66\frac{2}{3}$
		3	