Question Number	Scheme	Marks
6(a)	Trailer: $-100-T=600\times(-4)$	M1 A1
	2300 (N)	A1
		(3)
6(b)	System: $6500+100+200=4(M+600)$	M1 A1
	$M=1100$	A1
	OR	
	Car: $6500+200-'2300'=4M$	M1 A1
	$M=1100$	A1
		(3)
6(c)	$s=vt-\frac{1}{2}at^2:\ 40.5=\frac{1}{2}.4.t^2$ **OR** $0=u^2-2\times4\times40.5$ (u = 18) then $0=18-4t$ or $40.5=18t-\frac{1}{2}\times4t^2$	M1 A1
	$t=4.5$ s	A1
		(3)
		9
	Notes	
	N.B. In (a) and (b), use the mass in the '*ma*' term to decide which part of the system is being considered.	
(a)		
M1	Complete method to find an equation in T only. Correct terms but condone sign errors.	
A1	Correct equation in T only. (allow $-100+T=600\times(-4)$ oe)	
A1	Correct answer (must be positive)	
(b)		
M1	Complete method to find an equation in M only using an equation of motion for: the Whole System, correct terms but condone sign errors. **OR** the Car, correct terms (including their T) but condone sign errors.	
A1	Correct equation in M only.	
A1	Correct answer.	
(c)		
M1	Complete method, using *suvat*, to find an equation in t only They may find u(18) first. **N.B.** Clear use of $s=ut+\frac{1}{2}at^2$ with u = 0 and a = 4 is M0 e.g. 40.5 = – $2t^2$ from no working is M0A0	
A1	Correct equation in t only.	
A1	Correct answer.	