2a	NB If they use $a = 0$ then max score is 1/7 (3rd M1 only)		
	Equation of motion for van + trailer:	M1	First equation: Dimensionally correct. Need all terms. In F or P. Condone sign errors.
	$F-(500+200)=(900+300)a$	A1	Correct unsimplified equation
	Equation of motion for the trailer	M1	Second equation: Dimensionally correct. Need all terms. In F or P. Condone sign errors. Correct mass
	$T-200=300a$	A1	Correct unsimplified equation. Follow their a.
	Equation of motion for van $F-T-500=900a$		There are 3 possible equations. They need 2 of them. M1A1 for each correct unsimplified equation.
	$F=\frac{18000}{12}(=1500)$	M1	Use of $P=Fv$ Need to have substituted relevant values Condone use of 18 in place of 18000 (or incorrect number of zeros)
	Solve for T	DM1	Dependent on previous 3 M marks
	$T=400$	A1	Correct only
			NB: Inclusion of g should be marked as an accuracy error
		[7]	
2b	Equation of motion for van + trailer	M1	Dimensionally correct. Need all terms. Condone sign errors. Condone sine / cosine confusion Alt: Obtains separate equations for van and trailer and eliminates T
	$F-(200+500)-(300+900)g\sin\alpha=0$ $\left(\frac{18000}{v}=700+\frac{1200g}{15}\right)$	A1 A1	Unsimplified equation in F or v with at most one error. Consistent trig confusion is one error. Consistent sign error is one error. Missing g is one error. Correct unsimplified equation in v Allow with trig value not substituted
	$v=12$ or $v=12.1$	A1	2 sf or 3 sf
		[4]	
		(11)	