Question	Scheme	Marks	Notes
6a	Equation of motion	M1	Need all terms and dimensionally correct
	$F-600=900\times 2$	A1	Correct unsimplified equation
	$\frac{24000}{V}-600=1800$	M1	Use of $24000=FV$ Allow with 24 for 24000 or with a 0 missing
	$V=10$	A1	Correct only
		(4)	
6b	Equation of motion	M1	Need all terms and dimensionally correct. Mark omission of g as an accuracy error, not a dimension error. Condone sign error(s) and sin/cos confusion If they form separate equations for each vehicle they need both equations and to eliminate T to score the M1
	$F-(700+900)g\sin\theta-(550+600)=1600a$ $\left(\frac{24000}{8}-(1600)g\sin\theta-1150=1600a\right)$	A1 A1	Unsimplified combined equation with at most one error – allow with F Correct combined unsimplified equation with correct substitution for F
	$a=0.456\quad(0.46)\left(\text{ms}^{-2}\right)$	A1	2 sf or 3 sf not $\frac{73}{160}$
		(4)	
6c	Work-energy equation	M1	Must be work-energy. Must be using the mass of the trailer only and the resistance for the trailer only. Dimensionally correct. All relevant terms, no duplication of terms and no extras. Condone sign error(s) and sin/cos confusion.
	$\frac{1}{2}\times 700\times 9^2=550d+700gd\sin\theta$	A1 A1	Unsimplified equation with at most one error Correct unsimplified equation
	$d=27\quad(27.3)$	A1	2 sf or 3 sf
		(4)	