4	Use of $F = \frac{P}{v}$	M1	Formula with a speed substituted correctly At least once.
	Equation for horizontal motion	M1	Dimensionally correct in P or F. Condone sign errors. Need all terms
	$\frac{P}{15} - R = -0.2 \times 900 \quad \left(\frac{P}{15} - R = -180\right)$	A1	Correct unsimplified equation in P and R
	Equation for motion down hill	M1	Dimensionally correct in P or F_D. Condone sign errors. Condone sin / cos confusion. Need all terms. M0 if using F(down) = F(horizontal)
	$F_D + 900g \times \sin\theta - R = 900 \times 0.4$	A1	Unsimplified equation in F_D or P and R with at most one error.
	$\left(\frac{P}{12} + 30g - R = 360\right) \quad \left(\frac{P}{12} = R + 66\right)$	A1	Correct unsimplified equation in (P and) R with trig substituted. e.g. $\frac{5}{4}(R - 180) = 360 - 30g + R$
	Solve for R	DM1	Dependent on the 3 preceding M marks. Condone slips in the algebra.
	$R = 1160 \quad \text{or} \quad R = 1200$	A1	3 sf or 2 sf only NB the answer follows the use of 9.8, so a final answer 1164 is A0. Clear use of 9.81 is a rubric infringement. It gives $(P = 14742 \text{ and}) \; R = 1162.8$ and scores a maximum of 7/8 (final A0)
		[8]	
		(8)	
	Some candidates work through with the two driving forces. They score M1M1 as above A1 for 4 x F(down) = 5 x F(horizontal) or equivalent M1A1 as above A1 for Correct unsimplified equation in R e.g. $\frac{5}{4}(R - 180) = 360 - 30g + R$ M1A1 as above		