4(a)	$F = \frac{20000}{V}$	M1
	$F - 750g\sin\alpha - 200 = 0$	M1
	$\frac{20000}{V} - 750g\sin\alpha - 200 = 0$	A1
	Speed = 16 (m s^{-1})	A1
		(4)
4(b)	$D - 750g\sin\alpha - 200 = 750a$	M1
	$\frac{20000}{10} - 750g\sin\alpha - 200 = 750a$	A1A1
	a = 1 (m s^{-2})	A1
		(4)
4(c)	$\frac{1}{2}\times 750\times 10^2 - 750gh = 200d$	M1
	$\frac{1}{2}\times 750\times 10^2 - 750gd\sin\alpha = 200d$ **OR** $\frac{1}{2}\times 750\times 10^2 - 750gh = 200\times\frac{h}{\sin\alpha}$	A1A1
	d = 30 (m)	A1
		(4)
		(12)
	Notes for question 4	
4(a)	M1 for use of $P = Fv$, condone wrong number of 0's	
	M1 for equation of motion with correct terms, condone sign errors and sin/cos confusion, F does not need to be substituted	
	A1 Correct equation in V and α	
	A1 cao **N.B.** Allow use of $-F$ and/or $-V$ throughout.	
4(b)	M1 for equation of motion with correct terms, condone sign errors and sin/cos confusion, D does not need to be substituted.	
	A1 correct equation in a only with at most one error	
	A1 correct equation in a	
	A1 cao	
4(c)	M1 for work-energy equation, dimensionally correct, with correct terms, condone sign errors and allow with h and d **N.B**. Treat use of 16 instead of 10 an A error. **N.B.** M0 for $\frac{1}{2}\times 750\times 10^2 - 750gh = 200h$	
	A1 correct equation in d only or h only with at most one error	
	A1 correct equation in d only or h only	
	A1 cao	