1a	Impulse on Q or equivalent complete method to obtain v in terms of u:	M1	Complete method to form an equation in (m), v and u only. **N.B**.allow consistent missing m's. Include all relevant terms. Dimensionally correct . Condone sign errors. Need to have correct masses and speeds and pairings.
	$4.5mu = 3mv - 3m \times 2u$	A1	Correct unsimplified equation
	$v = 3.5u$ oe	A1	Correct answer only. A0 for $10.5u/3$.
		(3)	
1b	Impulse on P or CLM **OR** Impulse on Q AND CLM	M1	Complete method to form an equation in (m), k and (u) only. **N.B**.allow consistent missing m's and/or u's. Include all relevant terms. Dimensionally correct Condone sign errors. If using CLM only, must have found and be using a v in terms of u.
	$-4.5mu = km \times 2u - km \times 5u$ **OR** $km \times 5u + 3m \times 2u = km \times 2u + 3m \times 3.5u$	A1	Correct unsimplified equation
	$k = 1.5$ oe	A1	Correct answer only
	N.B. They may do (b) first, using the impulse on P, then use their k value in CLM to answer (a). All marks available.		
		(3)	
		(6)	