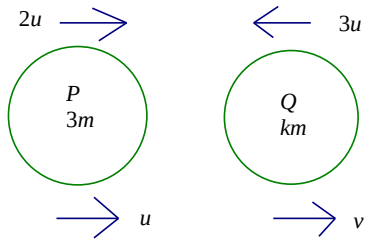
7a			
	Use CLM	M1	Need all terms and dimensionally correct. Condone sign errors. Might see them using equal (and opposite) impulses.
	$6mu-3kmu=3mu+kmv \quad \left((3-3k)u=kv\right)$	A1	Correct unsimplified equation
	$\Rightarrow v=\dfrac{(3-3k)}{k}u$ *	A1*	Obtain **given answer** from full and correct working
		3	
7b	Use of Impulse = change in momentum	M1	Must be subtracting. Can be for either particle.
	$\lvert I_Q\rvert=\lvert I_P\rvert=\lvert 3mu-3m.2u\rvert=3mu$ or $\lvert kmv-(-3mku)\rvert=\left\lvert km.\dfrac{3-3k}{k}u+3mku\right\rvert=3mu$	A1	Correct only (Do not need to state that $\lvert I_Q\rvert=\lvert I_P\rvert$ if find $\lvert I_P\rvert$)
		2	
7c	Use impact law:	M1	Seen or implied. If stated in (a) must be used here. Must be used correctly but condone sign errors
	$\dfrac{v-u}{5u}=e$ or $\dfrac{3-3k}{k}u-u=5ue$	A1	Correct unsimplified equation
	NB: the second and third M mark are not dependent on the first M mark		
	Use $v>u$ or $e>0$ to form an inequality in k	M1	Could use $e\ldots 0$ followed by $v\neq u$
	Use $e\geq 1$ to form an inequality in k	M1	
	$\dfrac{3-3k}{k}>1$ and $3-3k\geq 6k \quad \Rightarrow \dfrac{1}{3}\geq k<\dfrac{3}{4}$	A1	Correct answer only.
		5	
		(10)	