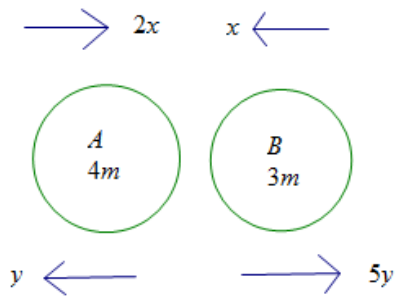
Q	Scheme	Marks	Notes
1			
(a)	Use of CLM Or equating impulses	M1	Dimensionally correct. Condone sign errors and allow missing m's and extra g's.
	$(4m\times 2x)-3mx=(3m\times 5y)-4my$ Or: $3m(5y--x)=4m(y--2x)$	A1	Correct unsimplified equation and must see all 4 terms but allow missing m's.
	$y=\frac{5}{11}x$ *	A1*	Obtain given answer from correct working with m's seen. Allow $y=\frac{5x}{11}$ but A0 if x is *clearly* in the denominator of the fraction.
		[3]	
(b)	Use of $I=mv-mu$	M1	Dimensionally correct. Condone sign errors and y not substituted but mass and velocities must match. M0 if m is used for mass or g is included or m is missing.
	$\pm 3m\left(\frac{25}{11}x+x\right)$ or $\left(\pm 4m\left(\frac{5}{11}x+2x\right)\right)$	A1	Correct unsimplified expression
	$\frac{108}{11}mx$ oe	A1	$9.8mx$ or better (9.8181..mx), must be positive.
		[3]	
		(6)	