2.	$\frac{\mathrm{d}}{\mathrm{d}t}(4t^{\frac{1}{2}}\mathbf{i} - 3t\mathbf{j})$	M1
	$2t^{-\frac{1}{2}}\mathbf{i} - 3\mathbf{j}$	A1
	$t = 4$: $\mathbf{i} - 3\mathbf{j}$	M1
	$(6\mathbf{i} - 3\mathbf{j}) = 3(\mathbf{v} - (\mathbf{i} - 3\mathbf{j}))$	M1
	$\mathbf{v} = 3\mathbf{i} - 4\mathbf{j}$	A1
	Speed $= \sqrt{3^2 + (-4)^2} = 5\ (\mathrm{m\,s^{-1}})$	M1A1
		(7)
	Notes for question 2	
	N.B. Column vectors are acceptable throughout.	
2.	M1 for differentiating **r** wrt to t with both powers decreasing by 1, must be a vector. M0 if **i** or **j** is missing and never reappear(s).	
	A1 Correct vector	
	M1 for putting $t = 4$ in their **v,** allow a slip, must have **attempted** to differentiate e.g. $\mathbf{v} = \frac{\mathrm{d}\mathbf{r}}{\mathrm{d}t}$ seen.	
	M1 for use of impulse-momentum (M0 if g included or 3 missing) to form an equation in **v** only using their **u**, which must have come from an attempt at finding a **velocity** at $t = 4$. M0 if they use **r** at $t = 4$. Condone $(6\mathbf{i} - 3\mathbf{j}) = 3((\mathbf{i} - 3\mathbf{j}) - \mathbf{v})$ and a slip.	
	A1 correct **v,** seen or implied**.**	
	M1 Use of Pythagoras on their **v**	
	A1 cao from a **correct v**	