QUESTION NUMBER	SCHEME	MARKS
5(a)	$\dfrac{(10\mathbf{i}-3\mathbf{j})-(-2\mathbf{i}+5\mathbf{j})}{8}$	M1 A1
	$1.5\mathbf{i}-\mathbf{j}$ (m s^{-1})	A1
		(3)
5(b)	$(-2\mathbf{i}+5\mathbf{j})+6\mathbf{v}$ OR $(10\mathbf{i}-3\mathbf{j})-2\mathbf{v}$	M1
	Correct unsimplified expression (= $(7\mathbf{i}-\mathbf{j})$)	A1
	$\lvert BT\rvert=\sqrt{(13-7)^2+(-5--1)^2}$	M1
	= $\sqrt{52}$, $2\sqrt{13}$ or 7.2 or better (m)	A1
		(4)
		(7)
	Notes for Question 5	
	Accept column vectors throughout	
5(a)		
M1	Use of displacement ÷ time. The terms in the numerator may be either way round but it must be a difference. M0 if they use 9 instead of 8	
A1	Correct unsimplified expression for **v**	
A1	Correct velocity, accept column vector $\begin{pmatrix}1.5\\-1\end{pmatrix}$ Ignore (velocity) = = $\sqrt{1.5^2+(-1)^2}$ etc	
5(b)		
M1	Complete method using their velocity to find the position of *B* at $t = 7$. They may find the position at $t = 0$ ($(-3.5\mathbf{i}+6\mathbf{j})$) first then add $7\mathbf{v}$	
A1	Correct unsimplified expression. Note that with correct **v** this simplifies to $(7\mathbf{i}-\mathbf{j})$	
M1	Use Pythagoras to find the distance between their position of *B* and *T*, allow slips. **N.B.** Must have used either $(-2\mathbf{i}+5\mathbf{j})+k\mathbf{v}$ or $(10\mathbf{i}-3\mathbf{j})+k\mathbf{v}$ where *k* is a non-zero integer, to find the position vector of *B*	
A1	Correct answer. Accept 7.2 (m) or better, exact value $2\sqrt{13}$, $\sqrt{52}$	