Question Number	Scheme	Marks
6(a)	$(-3\mathbf{i}+2\mathbf{j})+(p\mathbf{i}+q\mathbf{j})=(-3+p)\mathbf{i}+(2+q)\mathbf{j}$	M1
	$\frac{(-3+p)}{(2+q)}=\frac{1}{-2}$	M1A1
	$2p+q-4=0$ * Allow $0=2p+q-4$ but nothing else	A1*
		(4)
6(b)	p = 5 => q = -6 => Resultant force = $(2\mathbf{i}-4\mathbf{j})$	B1
	$(2\mathbf{i}-4\mathbf{j})$ = 0.5**a**	M1
	v = $(4\mathbf{i}-8\mathbf{j})\times 4$	M1
	Speed = $\sqrt{16^2+(-32)^2}$ = $\sqrt{1280}=16\sqrt{5}$ = 36 (m s^{-1}) or better	M1A1
		(5)
		(9)
	Notes for question 6	
6(a)	M1 For adding *and* collecting **i**'s and **j**'s. **N.B**. Could be implied by p = 4 *and* q = -4	
	M1 Using ratios oe to set up an equation in p and q only, allow the ratio the wrong way round. M0 if they write down: $-3+p=1$ and $2+q=-2$ and NEVER use ratios, but ignore these equations if they go on to use ratios	
	A1 Correct equation	
	A1* Correct answer correctly obtained	
6(b)	B1 Correct resultant force seen	
	M1 Use of **F** = *m***a** OR $F = ma$ where **F** (F) is their *resultan*t (must have attempted to add the two forces) (M0 if they include g)	
	M1 Use of **v** = **a***t* OR $v = at$ with t = 4 where **a** or a is **their** acceleration. (M0 if **u** or u is non-zero)	
	M1 Use of Pythagoras to find magnitude of **v** OR **a** OR **F**, including square root	
	N.B. The above 3 steps may appear in any order but must be entered on ePen in the order as above.	
	A1 Any equivalent surd or correct to at least 2 SF	