Question	Scheme	Marks	AOs
3	Resultant force $=(2+c)\mathbf{i}+(4-2)\mathbf{j}$	B1	1.1b
	$\sqrt{(2+c)^2+2^2}$ or $(2+c)^2+2^2$	M1	3.1a
	$(2+c)^2+4=4\times5$ or $\sqrt{(2+c)^2+2^2}=2\times\sqrt{5}$	M1	3.1a
	OR		
	$\mathbf{a}=\frac{1}{2}\left[(2+c)\mathbf{i}+(4-2)\mathbf{j}\right]$ oe	M1	
	$\frac{1}{4}\left[(2+c)^2+4\right]=5$ or $\frac{1}{2}\sqrt{(2+c)^2+2^2}=\sqrt{5}$	M1	
	$c=2$ or $c=-6$	A1	1.1b
	$c=2$ and $c=-6$	A1	2.2a
		(5)	

(5 marks)

Notes: **N.B.** Allow the use of column vectors

B1	Seen or implied, with **i**'s and **j**'s collected
M1	Using Pythagoras, with or without the root, on their resultant force **N.B.** This mark is available even if they've subtracted the two forces.
M1	Use of $F = ma$ to obtain an equation in c only.
	OR
M1	Using **F** = m**a** with their resultant force to obtain **a** with **i**'s and **j**'s collected **N.B.** This mark is available even if they've subtracted the two forces.
M1	Using Pythagoras, with or without the root, on their **a** to obtain an equation in c only
A1	One correct value
A1	Two correct values

Question	Scheme	Marks	AOs
	N.B. Use the mass in the *ma* term to determine which part of the system the equation refers to.		