

Question			Answer	Marks	AO	Guidance
7	(a)		When the boat is modelled as a particle, the size and shape of the boat are not taken into account in the model Any rotation of the boat is neglected	B1 [1]	3.3	A sensible comment
7	(b)		Resistance is $-300\mathbf{i}$ N Newton's second law $((450\mathbf{i} + 20\mathbf{j}) + (420\mathbf{i} - 20\mathbf{j})) - 300\mathbf{i} = 9000\mathbf{a}$ $[570\mathbf{i} = 9000\mathbf{a}]$	M1 A1 [2]	1.1a 1.1b	Sum of at least two forces seen in a N2L equation. Also allow for scalar equation in the \mathbf{i} direction only. Allow missing or incorrect resistance Accept equivalent scalar equation and statement that there is no [resultant] force or no acceleration in the \mathbf{j} direction)
7	(c)		$\mathbf{a} = \frac{570}{9000}\mathbf{i} = 0.0633\mathbf{i} \text{ m s}^{-2}$	B1 [1]	2.5	Must be vector. FT their equation(s) of motion