

9 In this question the horizontal unit vectors \mathbf{i} and \mathbf{j} are in the directions east and north respectively.

A model ship of mass 2 kg is moving so that its acceleration vector a m s^{-2} at time t seconds is given by $\mathbf{a} = 3(2t - 5)\mathbf{i} + 4\mathbf{j}$. When $t = T$, the magnitude of the horizontal force acting on the ship is 10 N .

Find the possible values of T .

[4]