

## 4D Non-Uniform Rods

1. Sam and Tamsin are sitting on a non-uniform plank AB of mass 25kg and length 4m.

The plank is pivoted at M, the midpoint of AB, and the centre of mass is at C where  $AC = 1.8\text{m}$ .

Tamsin has mass 25kg and sits at A. Sam has mass 35kg. How far should Sam sit from A to balance the plank?

2. A rod AB is 3m long and has weight 20N. It is in a horizontal position resting on supports at points C and D, where  $AC = 1\text{m}$  and  $AD = 2.5\text{m}$ .

The magnitude of the reaction at C is three times the magnitude of the reaction at D.

Find the distance of the centre of mass of the rod from A.