**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 = 1.8m.

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

1. 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 = 1m and AD = 2.5m.

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.