14 A uniform ladder AB of mass 35 kg and length 7 m rests with its end A on rough horizontal ground and its end B against a rough vertical wall.

The ladder is inclined at an angle of 45° to the horizontal.

A man of mass 70 kg is standing on the ladder at a point C, which is x metres from A.

The coefficient of friction between the ladder and the wall is $\frac{1}{3}$ and the coefficient of friction between the ladder and the ground is $\frac{1}{2}$.

The system is in limiting equilibrium.

Find x. **[8]**