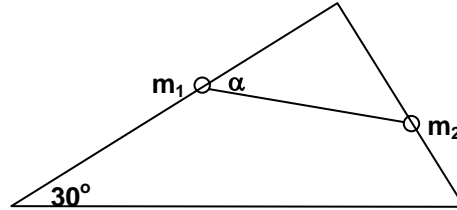# Problems of the Week 4

**Always show your work to receive credit (NO WORK=NO CREDIT)**

1. A stiff wire frame is formed in the shape of a right triangle and is set in a vertical plane. Two beads of mass $m_1$=100g and $m_2$=300g slide without friction on the wires. The two beads are connected by a stiff wire of negligible mass. What is the angle $\alpha$ when the system is in equilibrium?



2. A $5.80 \times 10^2$N Physics 4A student is weighing herself by standing on a scale mounted on a cart that rolls down a hill as shown below. As she rides down the hill the scale reading is $4.80 \times 10^2$N. What is the angle of the hill?
   A. $11.8^\circ$
   B. $18.6^\circ$
   C. $24.5^\circ$
   D. $29.3^\circ$