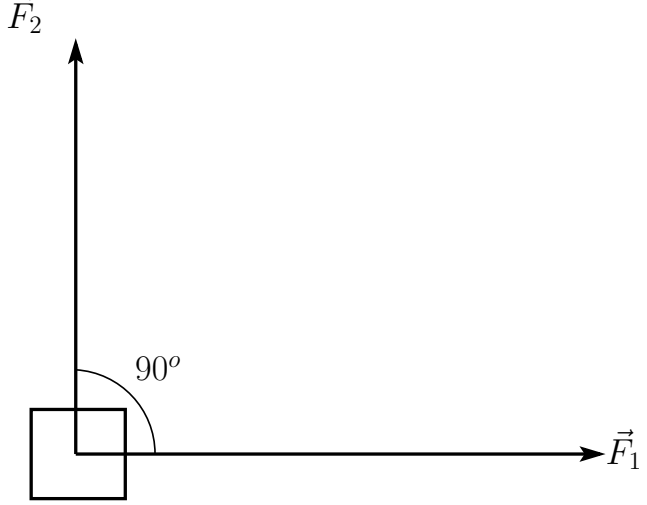
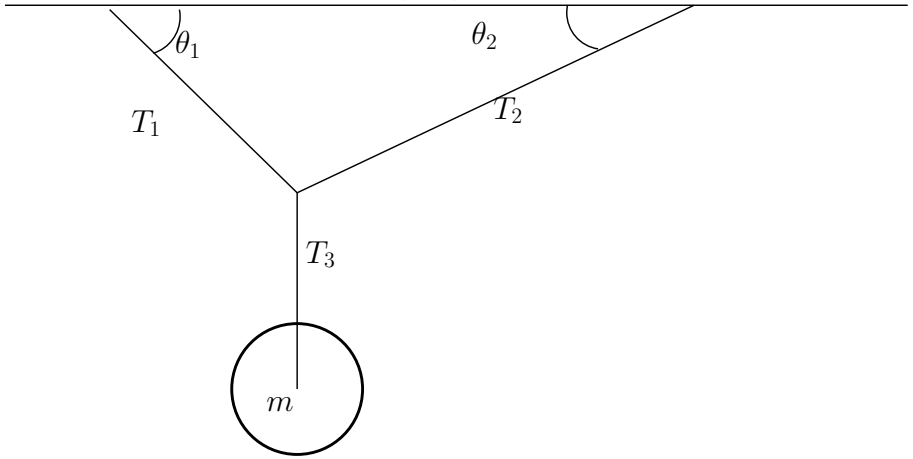
Two forces $F_1 = 50$ N and $F_2 = 30$ N are exerted on a mass of 30 kg below in the setup below. Find the acceleration of the mass?



A 10000 kg locomotive pulls a 20000 kg traincar down a level track. (a) Draw a free-body diagram of the system. If the acceleration of the train is 0.1 m/s^2 (b) find the new force acting on the locomotive-traincar system, (c) the net force acting of the locomotive, (d) net force acting on the traincar.

A mass $m = 8$ kg hangs from the ceiling supported by wires with tension T_1, T_2, and T_3. If $\theta_1 = 45^o$ and $\theta_2 = 30^o$, find the tensions T_1, T_2, and T_3.



Consider two masses attached with a wire. What is the acceleration of the system? What is the tension of the wire?