1. In the figure below the cylinder rolls without slipping. Neglect the mass of the pulley. Use the *equivalent mass approach* to find the equations of motion in terms of $x$.

2. At time $t = 0$ the road roller below begins to roll down the incline. Determine the vehicle's speed as a function of time. The two rear wheels weigh 500 lbs each and a radius of 4 ft. The front wheel weighs 800 lbs and has a radius of 2 ft. The body of the vehicle (less the wheels) weights 9,000 lbs. Assume no slippage.