C Team Forces Problem Set

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1. A 70 kilogram person rides in an elevator that is accelerating upward at 2.0 m/s^2. What is the normal force acting on the person?
2. A block with mass m is sliding down an frictionless incline of angle θ. What is the normal force acting on the block in terms of θ?
3. The coefficient of static friction between a pan and scrambled eggs is 0.04. What is the smallest angle from the horizontal that will cause the eggs to slide across the bottom of the pan?
4. A small object of mass m_1 moves in a circular path of radius r on a frictionless horizontal tabletop. It is attached to a string that passes through a small frictionless hole in the center of the table. A second object with a mass of m_2 is attached to the other end of the string. Draw free diagrams and set up Newton's Second Law equations for both masses (you do not have to solve anything).