Conservation of Energy Examples

1. Suppose a mass m slides down a frictionless inclined plane (of angle θ). At the bottom of the plane, the mass encounters a flat surface with a coefficient of friction $\mu = 0.30$. How far does the mass move beyond the bottom of the plane if it falls through a vertical height of 1.0 m?

2. A 520 g mass is traveling along a frictionless surface with a constant velocity of 2.0 ms^{-1}. The mass strikes a spring with a spring constant k = 1.2 Nm^{-1}. The surface under the spring is rough and the mass stops in a distance of 0.50 m. Calculate the coefficient of friction between the mass and the surface.