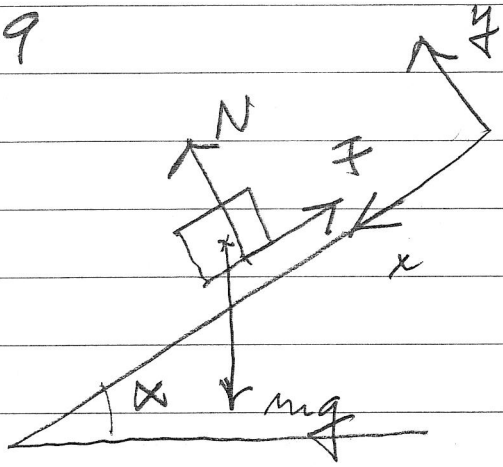
SG1102 090109

Prob. 1



$\uparrow$: $N - mg\cos\alpha = 0$, $F = \mu N$

$\swarrow$: $m\ddot{x} = mg\sin\alpha - F$

$m\ddot{x} = mg\sin\alpha - \mu mg\cos\alpha$

$\ddot{x} = -\lambda g$, BV: $x(0) = 0$, $\dot{x}(0) = v_0$

$\dot{x} = -\lambda g t + C$ BV $\Rightarrow C = v_0$

$\dot{x} = -\lambda g t + v_0 \Rightarrow \dot{x} = 0$ för $t = \frac{v_0}{\lambda g}$

$x = -\frac{\lambda g t^2}{2} + v_0 t + C'$ BV $\Rightarrow C' = 0$

$x\left(\frac{v_0}{\lambda g}\right) = \frac{v_0^2}{2\lambda g}$