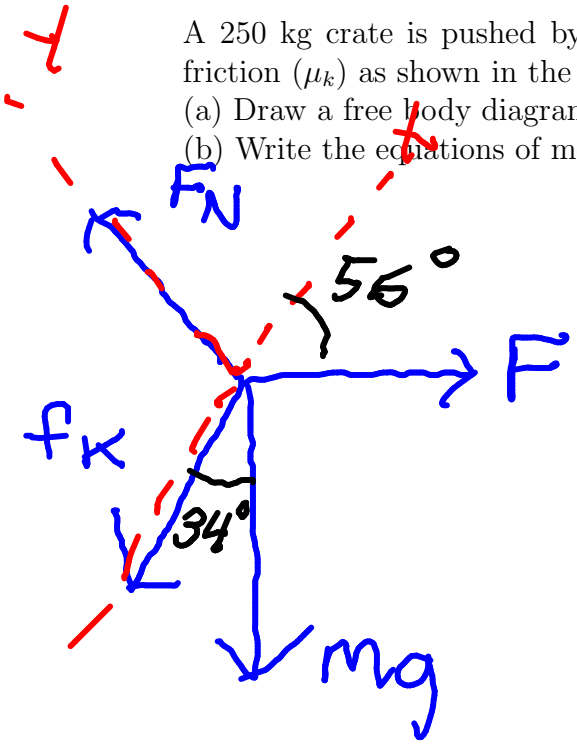
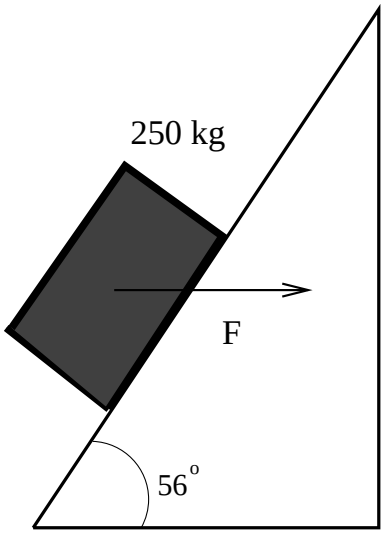
Quiz 3 – PH241 **Name**_____ ☐ **Pledged**

Show all work: Draw axis, component vectors, etc.

$\vec{F} = m\vec{a}$ $f_k = \mu_k F_N$ $f_s \leq \mu_s F_N$

A 250 kg crate is pushed by a horizontal force at constant speed up a 56^o ramp with friction (μ_k) as shown in the figure.
(a) Draw a free body diagram for the crate
(b) Write the equations of motion (x and y) for the crate





x: $0N = F\cos 56^\circ - f_k - mg\cos 34^\circ$

y: $0N = -F\sin 56^\circ + F_N - mg\sin 34^\circ$

$f_K = \mu_K F_N$