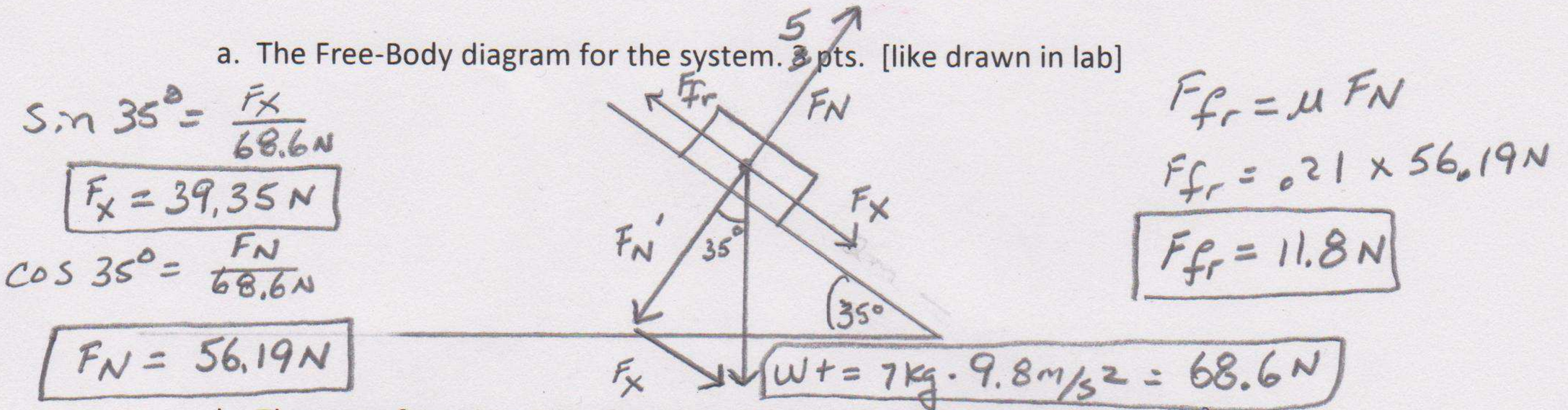
Honors Physics Chap 5 / 30 Name: _____
Practice Quiz E,G,H,I Date: _____ Period:___

Directions: Show all your work and label all your units.

1. A wood Plank is raised at one end until an angle of 35 degrees is achieved. A 7.0 kg box is placed on the incline 2.0 meters from the lower end and given a slight tap to overcome static friction. The coefficient of kinetic friction between the box and plank is 0.21. Determine:

a. The Free-Body diagram for the system. ~~3~~ 5 pts. [like drawn in lab]



b. The rate of acceleration of the box down the incline. ~~4~~ 2 pts. [3.93 m/s^2]

$F = ma$ $F = ma$

$39.35N - 11.8N = 7kg \cdot a$

$3.94 m/s^2 = a$

c. The speed of the box at the bottom of the incline. Assume that the initial speed of the box is zero. 3 pts. [3.96 m/s]

$V_0 = 0 m/s$

$V_f = ?$

$a = 3.94 m/s^2$

$s = 2m$

$V_f^2 = V_0^2 + 2as$

$V_f^2 = 2(3.94 m/s^2)(2m)$

$V_f^2 = 15.76$

$V_f = 3.97 m/s$