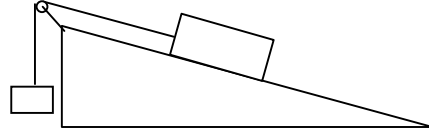# *Friction II*

1.  A 5.0 kg block is placed on a ramp that is inclined at 30°.  It is connected over a frictionless pulley by a string to a hanging mass.  The coefficients of friction for the ramp and the block are, $\mu_s = 0.4$ and $\mu_k = 0.2$.  Find the acceleration and the force of friction between the ramp and the block for the following arrangements (include direction on both answers).

a.  The hanging mass is 10.0 kg.



*a = 4.3 m/s² up ramp*
*$F_{fr\,RB}$ =8.5 N down ramp*

b.  The hanging mass is 4 kg.

*a = 0  m/s²*
*$F_{fr\,RB}$ =14.7 N down ramp*

c.  The hanging mass is 1.5 kg.

*a = 0  m/s²*
*$F_{fr\,RB}$ =9.8 N up ramp*

d. The hanging mass is 0.5 kg.

*a = 2.0 m/s² down ramp*
*$F_{fr\,RB}$ =8.5 N up ramp*