**Resolving Forces**

Name_____ Period:_____

1. Pippin and Merry both push a 5.0 kg box of fire works to the party. Merry pushes with a 3N force directly east, Pippin pushes with a 4N force at a 30 degree angle to Merry.
   a. Draw a free body diagram
   b. What is the net force in the x direction on the box?
   c. What is the net force in the y direction on the box?
   d. What is the acceleration in the x direction of the box?
   e. What is the acceleration in the y direction of the box?
   f. What is the magnitude of the acceleration of the box?
   g. What is the magnitude of the net force on the box?
   h. What direction is the net force?

top view

30°
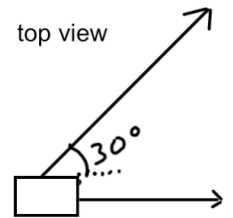
2. A body is pulled across frictionless ice by 3 ropes exerting forces as shown. Find the net force on the object. (Use the bashed line as a reference line. Calculate the components of the forces in that direction and perpendicular to it. Add them up.)

36.9°   50.0 N

19,0N − − − − − − − − − − − − − − − − −

53,1°

50.0 N
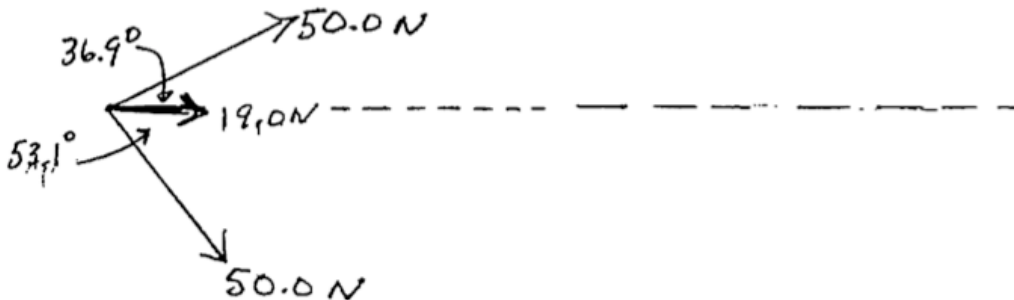
3. A 10. Kg mass is resting on a ramp with an inclination angle of 30 degrees.

   a. Draw a Free Body Diagram (remember to rotate the diagram). Mark your angles clearly
   b. Use Newton's second law to write an equation for the acceleration in the x-direction.
   c. Use Newton's law to write an equation for the acceleration in the y-direction.
   d. Find the magnitude of the acceleration of the block down the ramp.