**Force diagrams and problem solving**

1. Draw the force diagram
2. Sum up the forces in the x and y. Draw the components as needed.

∑Fx =

∑Fy =

Reminder: the sum of the forces = 0 if the object is at rest or moving at a constant velocity.

The sum of forces does not equal zero if the object is accelerating.

1. Fg = -9.8 N/kg \* mass or Fg\_\_ = mass

-9.8 N/kg

4. Solve for unknown.

WS 3b sample problems:

1. A crate is pulled across the room at a constant velocity. If the crate is pulled at a 55 degree angle with a tension force of 10 Newtons, calculate the crate’s weight if the force of kinetic friction is .5 Newtons.
2. A 1.176 kilogram block is at rest on an incline. Calculate the Force Normal and the Force of Static Friction holding it in place.

INCLINES ONLY:

Draw the force diagram. Rotate the axis so that Fn is along the Y axis and the incline plane is along the x axis.

Sum up the forces in the x and y. Draw the components for Fg.

∑Fx =

∑Fy =

Reminder: the sum of the forces = 0 if the object is at rest or moving at a constant velocity.

The sum of forces does not equal zero if the object is accelerating.

Fg = -9.8 N/kg \* mass or Fg\_\_ = mass

-9.8 N/kg

Solve for unknown.

1. A \_\_\_\_\_\_\_\_\_N tension force is used to pull a box up the\_\_\_\_\_ degree incline at a constant velocity. What is the Fn and weight of the box? (Ignore friction (friction free event))