

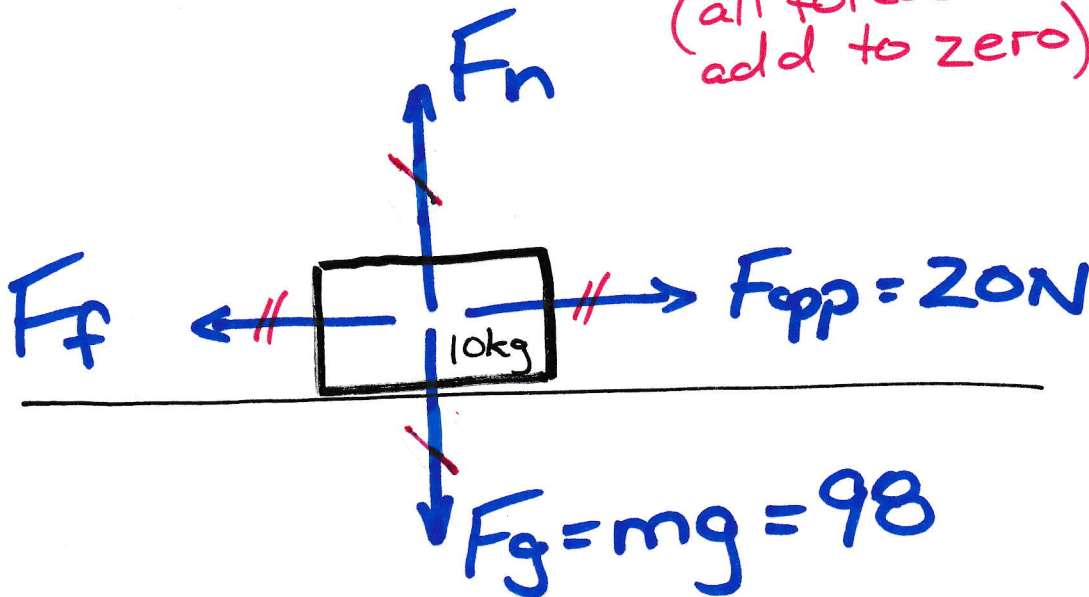
Newton's First Law : Inertia

If the net force acting on an object is zero, the object will maintain its state of rest or constant velocity.

Inertia means that unless a force acts on an object, it won't start moving from rest or change its velocity.

Example: Analyze the forces acting on an object moving on a flat horizontal surface to the right at a constant velocity. If the mass of the object is 10kg, and a force of 20N to the right is being applied, find the normal force and the force of friction.

* constant velocity $\vec{F}_{net} = 0$
(all forces as vectors add to zero)



Since $F_{net} = 0$;

$F_g = F_n$ (downward force = upward force)
 $\therefore F_n = 98 \text{ N}$

$F_f = F_{app}$ (leftward force = rightward force)
 $\therefore F_f = 20 \text{ N}$