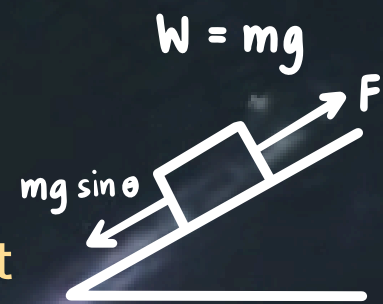
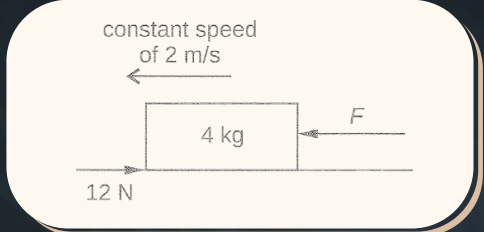




FORCES



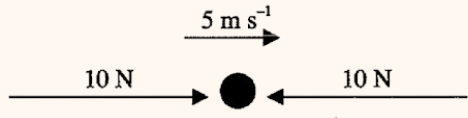
Field Non - Contact **Applied** **Resistive** **Contact**



By Newton's First Law of Motion, Object will remain in uniform motion since there is no resultant force.
 $F = 12N$

Newton's 1st Law - Balanced forces

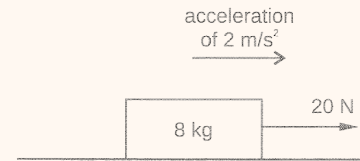
- A body at rest remains at rest
- A body in uniform motion remains in uniform motion. Unless acted upon by an external resultant force



- If Thrust > Weight. Accelerating UP
- If Thrust = Weight, Constant Velocity UP
- If Thrust < Weight, decelerating while moving UP since downward acceleration is opposite from motion. Eventually, rocket reaches a highest point with 0m/s, rocket starts accelerating downwards since acceleration is downwards and same direction as motion.

Newton's 2nd Law - unbalanced forces

- The resultant force acting on a body is proportional to the product of its mass and acceleration.



By Newton's Second Law of Motion, Object is accelerating. $F_{net} = ma$
Friction is against the driving force.

Driving force - friction = $F_{net} = ma$
 $20 - \text{friction} = (8\text{kg})(2)$
friction = 4N

Newton's 3rd Law - Forces are equal and opposite

- If object A exerts a force on object B
- Then object B exerts a force back on object A with equal magnitude and opposite direction

Action

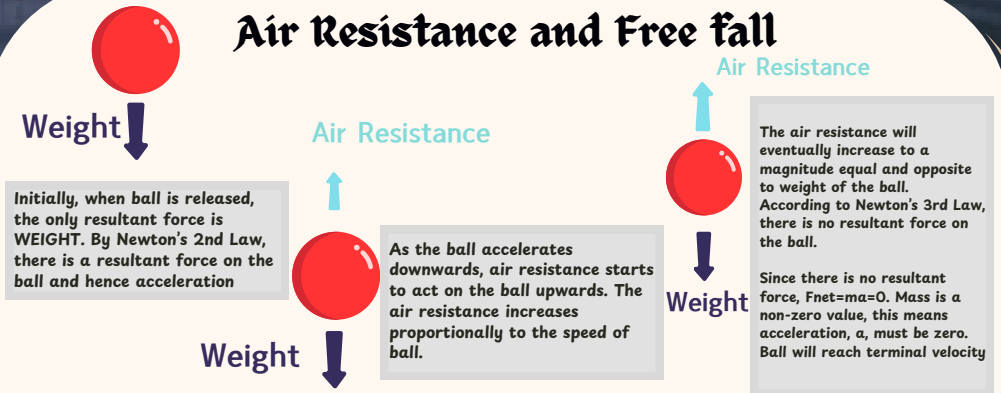
- Weight of Car (Force of Earth on car)
- Normal contact force of car on ground
- Tension force of trailer on car

Reaction

- Force of car on Earth
- Normal contact force of ground on car
- Tension force of car on trailer



Air Resistance and Free fall



Terminal Velocity - maximum speed attainable by an object as it falls through a fluid

