Physics

Weight and mass relationship

Formula of the weight is

W = mass x gravity

On earth g = 9.8 N/kg

On moon g= 1.6 N/kg

Example question

a person has a mass of 5 kg

Now find her weight on moon and earth

On earth

5 x 9.8 = 49N

On moon

5 x 1.6 = 8N

Resultant forces

When many forces act on an object they combine in one single force this is the resultant force

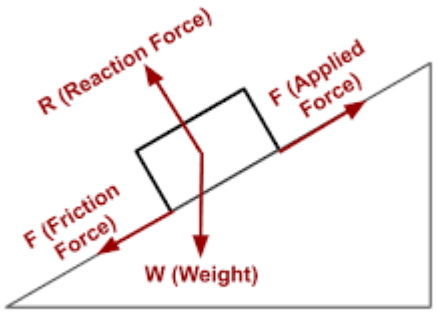
Free body diagrams

show all forces on an object

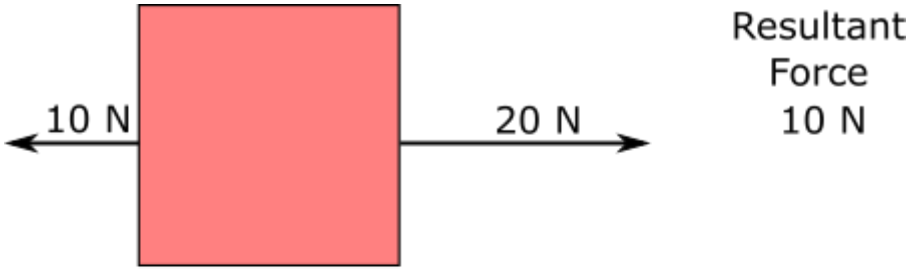
example skydiver

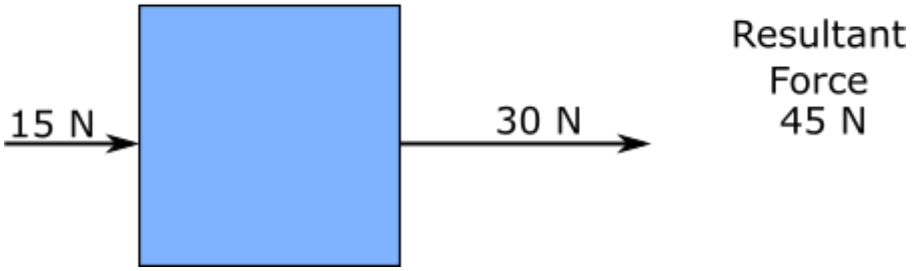
weight down and air drag is up

Aero size will show the force size and the arrow direction will show the force direction



Finding the resultant force





- If both arrows are in opposite direction so you will subtract them
- If both arrows are in same direction so you will add them

Work done by the forces

- if a force moves an object it means work is done and energy is transferred
- Need energy source like fuel or food

- **Formula**
- **work done = Force x distance**

Example is push 20 Newton force on object 20cm so what will be the work done

W= 20 x 0.2
W= 4J