Calculating Forces on an Object

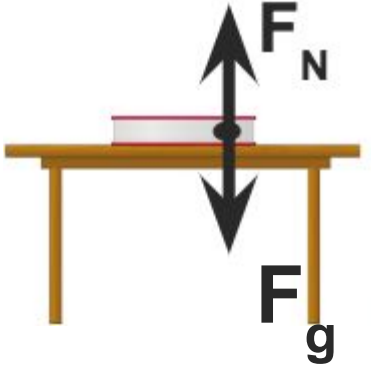
Learning Target

I will be able to determine the net force on an object.

I will be able to determine the magnitude of the forces acting on an object, given the net force.

Common Forces

- F_g = weight → downward
- F_N = normal → perpendicular to surface
- F_f = friction (includes air) → opposite to motion
- F_p = push/pull
- F_T = tension in string

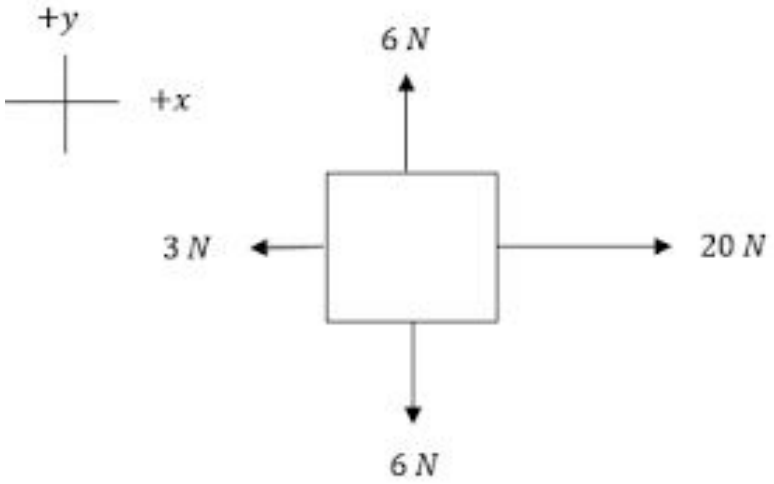


Calculating Net Force

Horizontal components and vertical components are independent of each other.

- When calculating the net force we keep the horizontal and vertical forces separate

Calculating Net Force

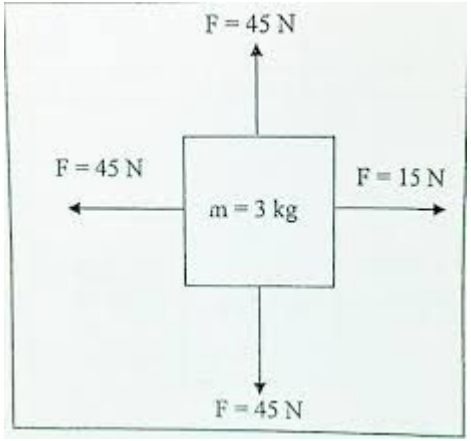


Horizontal Component (X)	Vertical Component (Y)
Right (positive) 20 N	Up (positive) 6 N
Left -3N	Down -6 N
Difference 17 N	Difference 0N

Net Force: 17 N Right

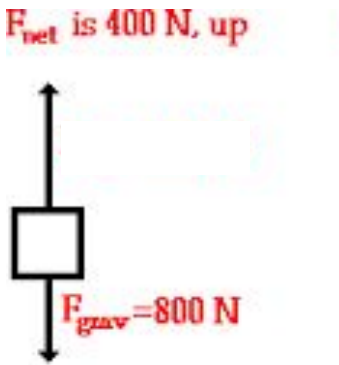
Your Turn

Left = Negative
Down = Negative



Horizontal Component (X)	Vertical Component (Y)
Right 15 N	Up 45N
Left -45 N	Down -45 N
Difference -30 N	Difference 0 N

Net Force = 30 N Left



Horizontal Component (X)	Vertical Component (Y)
Right 0N	Up 1200N
Left 0N	Down: -800N
Difference 0N	Difference 400 N