Calculating Net Force

Objective:

Determine the net force acting on an object.
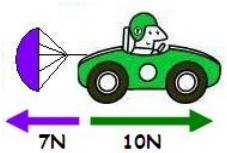
Draw FBD's depicting the net force on objects.

7N   10N

Free Body Diagrams

$F_T = 10N$

1 kg

$F_W = 10N$

$F_T = 5N$ $5N = F_T$

1 kg

$F_W = 10N$
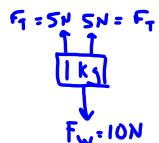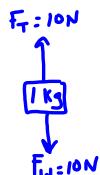
Net Force

- amount of force not balanced out — Unbalanced Force

- causes a change in motion

$$F_{Net} = F_a - F_f$$

$$\Sigma F = 0$$

7N   10N

5N
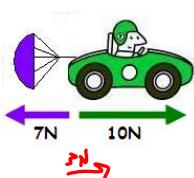
**Net Force = 0**

- no change in motion - at rest

$F_N = 100N$

$F_f = 50N$ $F_a = 50N$

$F_W = 100N$

$F_{NET} = 0$
REST

Net Force ≠ 0   - Acceleration!

$F_N = 100N$

F_f 50N $F_a = 60N$
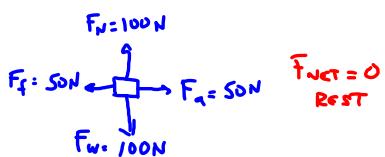
$F_W = 100N$
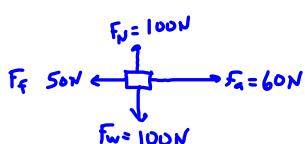
$F_{NET} = 10N$

Velocity is →

Net Force = 0

- moving w/ constant velocity

$F_N = 100N$

$F_f = 50N$ $F_a = 50N$

$F_W = 100N$

Start w/ 60N but back it down to 50 N.

$F_{NET} = 0$
constant vel.

Net Force ≠ 0　　　- Decceleration!

$F_N = 100N$

$F_f = 50N$ ←
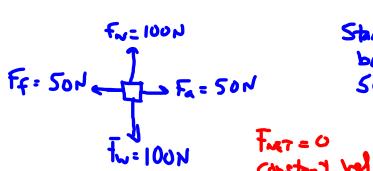
$F_W = 100N$
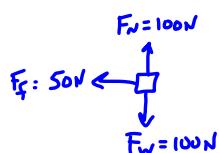
$F_{net} = 50N$ ←

Velocity is → and is slowing down

Net Force ≠ 0　　　- Acceleration!

Elevator

$F_N = 200N$

$F_W = 100N$
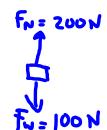
$F_{net} = 100N$
movement upward

Net Force Review　　　Newton's 1st Law

$$\Sigma F = 0$$

= 0　- stays at rest

　　- moving w/ constant velocity

≠ 0　- changes motion (accelerates)
　　　speeds up or slows down

Assignments . . .

- Begin Chapter 3 HW　# 9 - 21