Equilibrium

- An object is in equilibrium when:
  1. It's acceleration is zero
     - Not moving
     - Moving @ constant velocity
- When all the forces on an object are balanced out.

LESSON BACKGROUNDS

Newton's second law (Adding forces)

$$\Sigma F = ma$$

Add up
↳ Direction matters

① $\xrightarrow{1N}$

$\xrightarrow{2N}$

$1 + 2 = 3N$ right

② $\xrightarrow{1N}$

$\xleftarrow{2N}$

$1 + (-2) = -1N$

LESSON BACKGROUNDS

Reminders

$$F = ma$$

$$m = \frac{F}{a}$$

$$a = \frac{F}{m}$$

$$1N = 1\,kg\,m/s^2$$

LESSON BACKGROUNDS

Physics Learning goals: Dec 5

- 1) What is equilibrium?
- 2) Give an example of an object in equilibrium.
- 3) Can a moving object be in equilibrium?
- 4) A 2 kg tortoise is accelerating at 3 m/s2, how much force is being applied to the tortoise?
- 5) A 12 N force is applied to a 2 kg object. What will be the magnitude of the acceleration of the object?