Newton's 2nd Law:

- Newton's 1st: Overall (net) forces cause acceleration
- Newton's 2nd: Overall forces will cause an object to accelerate in the direction of the net force. Objects that have more mass will accelerate less for a given net force. (Things that are light are easier to accelerate)

Newton's 2nd Law:

Net force on an object = Object's mass · Object's acceleration

$$F_{net} = m \cdot a$$

- F_{net}: Newton (N)
- m: kilograms (kg)
- a: m/s^2

If You Know Table for $F=m \cdot a$

If you know	You can find	By using	Units
m, a	F_{net}	$F_{net} = m \cdot a$	N + direction
F_{net}, m	a	$a = \frac{F_{net}}{m}$	$\frac{m}{s^2}$ + direction
F_{net}, a	m	$m = \frac{F_{net}}{a}$	kg

Snail pushed with an overall force of 6.2 N. It has a mass of 0.2 kg. What is its acceleration?

① $F_{net} = 6.2\ N,\ m = 0.2\ kg$

② a

③ $a = \frac{F_{net}}{m}$

④ $a = \frac{6.2\ N}{0.2\ kg} = 31$

⑤ $\boxed{a = 31\ m/s^2\ up}$

Pulley: