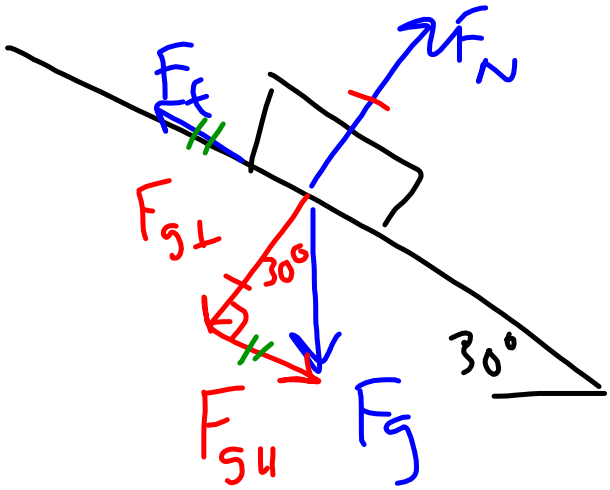

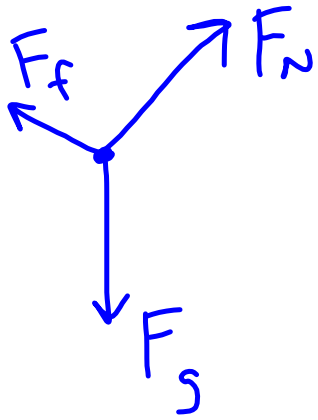

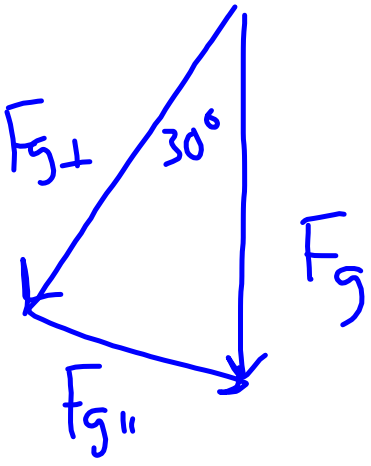

$$\sin(30°) = \frac{F_{g\parallel}}{F_g}$$

$$\cos(30°) = \frac{F_{g\perp}}{F_g}$$

Model Name:

Balanced Force Model

Description

Situations where forces in one direction are balanced

- constant velocity
- not moving

Properties

Force (F) → N

mass (m) → kg

angles (θ) → ° (degrees)

acceleration (a) → m/s^2

Weight (F_g)

Net Force (F_{net})

Representations

- Force Diagrams (Free-Body Diagrams)
- Pictures
- Mathematically
  - $F_{net} = \emptyset$
  - $F_g = mg$
- Written/Verbal

Rules of Behavior:

- Object has no acceleration.
- F_N is always perpendicular to a surface.
- There will always be a resistive force unless stated.
- If there are two forces acting in a direction, their magnitudes are equal.
- Forces always come in pairs.