6. Friction

Overview:
- Friction Force
  - We adopt simple model for frictional forces specified by two constants for each pair of surfaces that are in contact with each other
- Static Friction
  - $f_s \leq \mu_s N$
    - μ_s is a constant coefficient of static friction
- Kinetic Friction
  - $f_k = \mu_k N$
    - μ_k is a constant coefficient of kinetic friction
- Examples of how to use constants to account for friction within Newton's framework

Friction
- The force between two surfaces that are in contact has:
  - Component Perpendicular to Surface = Normal Force
  - Component Parallel to Surface = Friction Force
- Direction *always* such that it opposes any relative motion of surfaces
- Two types of friction forces:
  - Kinetic Friction
    - When one surface moves relative to another
  - Static Friction
    - When surfaces does not move relative to each other

Kinetic Friction
- 'Siding'
- Proportional to normal force
  - $f_k = \mu_k N$
    - $\mu_k =$ coefficient of static friction
      - Constant of proportionality
      - Depends only on the properties of the two surfaces

- μ_k = coefficient of static friction
    - Constant of proportionality
    - Depends only on the properties of the two surfaces

Static Friction

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