Review of Forces

1. Workflow:
   - Identify forces acting on object(s)
   - Find the net resultant force in appropriate directions
   - Using resultant force $\Rightarrow$ find acceleration
   - Answer question (kinematics, etc.)

2. Conservative forces (i.e. reversible)
   - Gravitational force:
     - Tension
     - Normal force
     - Elastic (spring) force

   ![Diagram of gravitational force with mass and direction](image)

   ![Diagram of tension force with string and direction](image)

   ![Diagram of normal force with block and direction](image)

   ![Diagram of elastic (spring) force with block and spring](image)
3. Non conservative forces

- Friction

  \[ f_{\text{fric}} = \begin{cases} \leq \mu_s N \text{ (static)} \\ = \mu_k N \text{ (kinetic)} \end{cases} \]

- Drag

\[ D = \frac{1}{2} \rho C A v^2 \]

4. Uniform Circular Motion

\[ \Sigma F_r = \frac{mv^2}{r} \]
Example:
Two blocks stacked

\( M_s = 0.4 \)

What is max \(|F_a|\) such that top block doesn't slip off?

\( \mu = 0 \) (no friction)