

# Contact Forces: Friction



- Magnitude of frictional force (parallel to surfaces) is proportional to the normal force.

$$\rightarrow f_{\text{kinetic}} = \mu_k N$$

$\mu_k$  coefficient of Kinetic friction

$$\rightarrow f_{\text{static}} \leq \mu_s N$$

$\mu_s$  coefficient of Static friction

- Be Careful!

→ Static friction  $\leq$ , can be any value up to  $\mu_s N$

→ Direction always opposes motion