

# PHYS121 Notes

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# 1 Chapter 5

## 1.1 Friction

There are three kinds of friction:

- Static friction:  $\vec{f}_s \leq \mu_s n$ . Applies when object is not moving. It adjusts itself so that the net force is 0, but it can only increase to  $\mu_s n$  at most.
- Kinetic friction:  $\vec{f}_k = \mu_r n$ . Applies when object is moving.
- Rolling friction:  $\vec{f}_r = \mu_r n$ . Applies when object is rolling.

### Interacting Objects

According to Newton's Third Law:

- Every force occurs as one member of an action/reaction pair of forces.
- The two forces act on **different** objects.
- The two forces point in opposite directions and have the same magnitude.

## 1.2 Ropes and Pulleys

Ropes