
Worksheet 9: Newton's First and Second Laws

Objectives

- Analyze forces in mechanical equilibrium.
- Determine the effect of a nonzero net force on an object.

Summary

Newton's first law

$$\Sigma \vec{F} = \vec{0} \Leftrightarrow \vec{a} = \vec{0}$$

Newton's second law

$$\vec{a} = \Sigma \vec{F} / m$$

Problems

1. Draw free body diagrams for the following objects.

- A block resting on an incline.
- A bird perched on a wire.
- A baseball in flight.
- A cart pulled by a horse.
- A dog straining at a leash, but not going anywhere.

