**Forces and friction**

**Ch 4 & 5.2**

**Objectives:**

**Define** Force.

**Use** Newton’s second law to solve problems.

**Explain** the meaning on Newton’s first law

**Describe** how weight and mass are related.

**Differentiate** between actual weight and apparent weight.

**Define** Newton’s third law.

**Explain** tension in ropes with Newton’s third law.

**Define** the Normal force.

**Determine** the value of the Normal force using Newton’s second law.

**Define** friction force.

**Distinguish** between static and kinetic friction.

**Vocabulary:**

|  |  |  |  |  |
| --- | --- | --- | --- | --- |
| Force | Free-body diagram | Net force | Newton’s first law | Newton’s second law |
| Newton’s third law | Inertia | Equilibrium | Apparent weight  | tension  |
| Normal force | Kinetic friction  | Static friction | Coefficient of Kinetic friction | Coefficient of Static friction |
|  |  |  |  |  |

**Formulas:**

a = (F / m)

weight = mg

Ffriction = μ Fnormal

Fnormal = mg

**Problems to Study:**

Ch 4 Practice Problems: 1-8, 15-20, 32-33

Ch 4 EoC Problems: 59-64, 67-88

Ch 5.2 Practice Problems: 17-26

Ch 5.2 EoC Problems: 90-94,104