

# Chapter 3. Forces

## Section 3.1. Types of Forces

**Definition.** When a force acts at a point, the line parallel to the vector and passing through the point is the *line of action*. For a system of forces, if the lines of action intersect, then the forces are *concurrent*.

**Note.** The text describes a number of forces: internal, external, body, surface, contact, and friction.

**Definition.** A force exerted through a rope or cable results in a force called *tension* in the cable or rope.

**Note.** According to Hooke's Law, a spring of natural length  $L_0$  which is stretched or compressed to a length  $L$  exerts a force  $\vec{F}$  satisfying  $|\vec{F}| = k|L - L_0|$  where  $k$  is the spring constant (which has units of (force)/(length)).

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