$$\vec{R} = \sum \vec{F} = \vec{F}_1 + \vec{F}_2 + \vec{F}_3 + \cdots \qquad (4.1)$$

$$\sum \vec{F} = 0 \quad \text{(body in equilibrium)} \qquad (4.3)$$

$$\sum \vec{F} = m\vec{a} \quad \text{(Newton's second law of motion)} \qquad (4.6)$$

$$\sum F_x = ma_x \quad \sum F_y = ma_y \quad \sum F_z = ma_z \text{ (Newton's second law of motion)} \qquad (4.7)$$

$$w = mg \quad \text{(magnitude of the weight of a body of mass } m\text{)} \qquad (4.8)$$

$$\vec{F}_{A \text{ on } B} = -\vec{F}_{B \text{ on } A} \quad \text{(Newton's third law of motion)} \qquad (4.10)$$