Chapter 4 – Introducing Forces

§4-1 Inertia (p126)

Inertia is the natural tendency of an object to remain in its current state of motion. The amount of an object's inertia is directly related to its mass.

§4-2 Common Forces

mass (kg) – the amount of matter in an object.

Mass does not depend on location.

Weight (N) – the force of gravity acting on an object
(N ↑ newtons) Weight depends on location.

$$\vec{F}_g = m\vec{g}$$

Where $\vec{F}_g$ is the weight (force of gravity) (N)

m is the mass (kg)

$\vec{g}$ is the acceleration due to gravity (m/s^2)

Where $\vec{g}$ is $9.81\ m/s^2$ [down]
(near the Earth's surface)

MP|135

$m = 4.0\ kg$

$\vec{F}_g = ?$

$\vec{g} = 1.64\ m/s^2$ [down]

$\vec{F}_g = m\vec{g}$

$\vec{F}_g = (4.0\ kg)(1.64\ m/s^2\ [down])$

$\vec{F}_g = 6.6\ N$ [down]

TO DO: ① MP|136
② PP|137