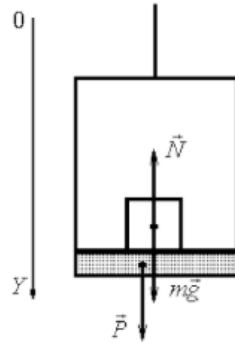


Answer on Question #78152, Physics / Mechanics | Relativity |

An object is situated in a freely falling lift. What is its weight in the frame of reference of the lift? Explain with the help of a free-body diagram.

Answer:

Weight is the force with which the body acts on the support. By the third law of Newton $P = N$.



We write the equation for this body in the vector form according to Newton's second law

$$m\vec{a} = m\vec{g} + \vec{N}$$

or

$$m\vec{a} = m\vec{g} - \vec{P}$$

Whence,

$$\vec{P} = m(\vec{g} - \vec{a})$$

In the projection on the axis OY

$$P = m(g - a)$$

Answer provided by <https://www.AssignmentExpert.com>