Question #53210, Physics / Other

If a 55-N force is required to move an object that weighs 93 N across a level surface at constant speed, what is the coefficient of kinetic friction?

**Answer:**

The kinetic friction coefficient for the constant velocity of an object is determined by an equation:

$\mu = F_k/F_n$, where $F_k$ is a friction force, and $F_n$ is a normal force which is perpendicular to the direction of the object movement.

Since the velocity is constant, $F_k$ equals to the force required to move an object (F). In addition this case $F_n$ equals the weight of the object (W).

Thus, the coefficient of kinetic friction can be calculated as follows:

$\mu = F_k/F_n = F/W = 55$ N/93 N $= 0.5914$