

## Answer on Question #52385, Physics, Mechanics | Kinematics | Dynamics

You are trying to push a crate across the rough floor of a warehouse. Just before the crate begins to move, you have applied a force of 102 N. The shipping label on the crate says it is 61 kg. Calculate the coefficient of static friction between the crate and the floor. (Use  $g=9.8\text{ms}^{-2}$ )

### Solution:

The friction force is the force exerted by a surface as an object moves across it or makes an effort to move across it. There are at least two types of friction force - sliding and static friction.

The maximum amount of friction force that a surface can exert upon an object can be calculated using the formula below:

$$F_{frict} = \mu F_{norm}$$

The normal force is the support force exerted upon an object that is in contact with another stable object.

$$F_{norm} = W \text{ (weight)} = mg$$

Thus,

$$\mu = \frac{F_{frict}}{mg} = \frac{102}{61 * 9.8} = 0.17$$

**Answer:**  $\mu = 0.17$