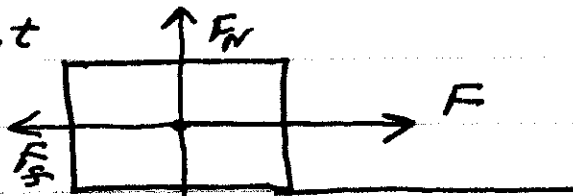


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Solution

A force of 10.00 newtons can just cause a 20.00 kilogram object to move without acceleration on a flat horizontal surface on Earth. Find μ_k .



Since there is no acceleration the force only has to overcome friction

$$F = F_s = \mu_k F_N = \mu_k mg$$

$$F = \mu_k mg \quad \text{so} \quad \mu_k = \frac{F}{mg}$$

$$\mu_k = \frac{10.00 \text{ n}}{(20.00 \text{ kg})(9.8 \text{ m/s}^2)}$$

$$= \frac{10.00 \text{ n}}{196.0 \text{ n}} = 0.051020408$$

$$\mu_k = 0.0510$$