

A man slides down a telegraphic pole with an acceleration equal to one-fourth of acceleration due to gravity. The frictional between man and pole is equal to in terms of man's weight W .

Solution

According to Newton's second law

$$ma = mg - F_{fr} = m\left(\frac{1}{4}g\right) = \frac{1}{4}mg \gg F_{fr} = mg - \frac{1}{4}mg = \frac{3}{4}mg = \frac{3}{4}W$$