Answer on Question #82091, Physics / Mechanics | Relativity

Question:

A block of mass 4 kg is placed to a rough vertical wall with a normal force of 100N.The coefficient of static and kinetic friction are 0.5 and 0.3 respectively. The minimum force required to move the block is

Solution:

The maximum static friction force $F_f = 0.5 \cdot F = 50(N)$, therefore to start the movement down the force should be as much as $F_1 = F_f - mg = 50 - 4 \cdot 10 = 10(N)$, but to move the block after starting you don't need to apply any force because $mg = 40(N) \succ 0.3 \cdot 100 = 30(N)$. Thus we should consider the minimum force as 10 N, as far as just started the movement does not need any force at all.

The answer:

Evidently the minimum force equals to 10 N.