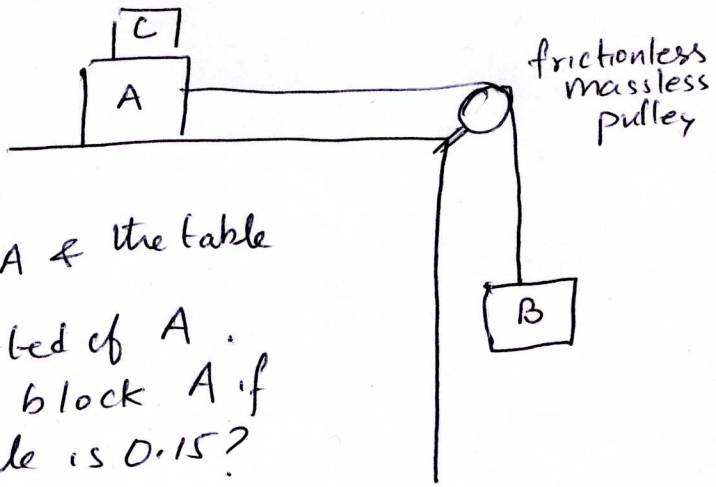
Problem #1

In fig 1, blocks A & B have weights 44 N & 22 N respectively.

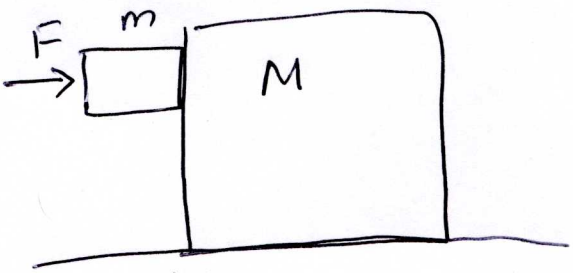


a) Determine the minimum weight of block C to keep A from sliding if μ_s between A & the table is 0.2

b) Block C is suddenly lifted off A. What is the acceleration of block A if μ_k between A & the table is 0.15?

Problem #2

The two blocks are not attached to each other. The coefficient of static friction between the blocks is $\mu_s = 0.38$ but the surface beneath the ~~blocks as~~ larger block is friction less.



m = 16 kg
M = 88 kg

a) What is the minimum magnitude of the horizontal force $\vec{F}$ required to keep the smaller block from slipping down the larger block?

b) Draw the freebody diagrams of ~~the~~ m, M & a combined freebody digram of both masses.

c) Identify action & reaction pairs in your free body diagrams.

Problem # 3

In Fig. 3, 4.0 kg block A and 6.0 kg Block B are connected by a string of negligible mass. Force $\vec{F_A} = (12\,N)\,i$ acts on block A; force $\vec{F_B} = (24\,N)\,i$ acts on block B.

a) Draw the free body diagrams of A & B & (A+B) considered as a single object

b) what is the tension in the string?

c) What is the acceleration of the masses

d) what would happen if $\vec{F_B}$ acts on m_A & $\vec{F_A}$ acts on m_B.