



Week HW 6, COM LINEAR ANGULAR

Motion of the centre of mass of a system

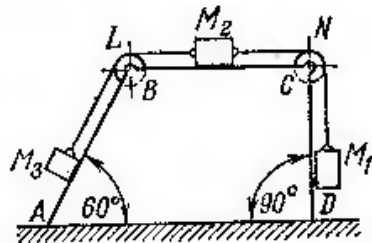
Change of Principal Angular momentum of a system

Task 1

There are 3 weights with masses $M_1 = 20 \text{ kg}$, $M_2 = 15 \text{ kg}$, $M_3 = 10 \text{ kg}$. They are connected by ideal string. This string goes through by two pulleys L , N . When the M_1 weight goes down on 1 meter, the body $ABCD$ shifts on some distance S .

The task is to find the distance of this movement according to the ground. Neglect the friction between the floor and $ABCD$.

Answer: It will move to the left on 14 cm.



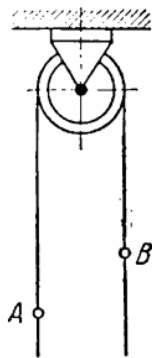
Task 1

Task 2

On the figure a pulley with a rope running over it is presented. A man (mass m) holds one side of the rope at A while a load, equal to the weight of the man, is attached to the other end of the rope at B .

What would happen to the load if the man starts climbing up the rope with the velocity a relative to the rope. The weight of the pulley is equal 0.25. The mass of the pulley is distributed uniformly along its rim.

Answer: The load will ascend with velocity $\frac{4}{9}a$.



Task 2

Deserve "A" grade!

– Oleg Bulichev

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📍 @Lupasic

🏢 Room 105 (Underground robotics lab)