Homework - 5

## Quarter - 3

Course: Physics Regular
Uploaded date: 02/24/2021

## Due date: 03/01/2021

Instructions:

1. Do not forget to write your first and last name at the top of your work.
2. Your work should be clear.
3. Make all calculations step by step.
4. If you have to draw a figure or a diagram use your pencil and your ruler.
5. Justify your answers.
6. Your answers should be written on a separate sheet.
7. Robert uses a wrench to turn a stubborn bolt. (a) How much would the torque on the bolt increase if the applied force were double? (b) How much would the torque increase for the original force if a pipe were inserted over the wrench to make the lever arm 3 times as long?
8. A horizontal meterstick has a 3 kg blob of clay stuck on one end, at the 0 cm mark, and a blob of mass $m$ stuck on the other end, at the 100 cm mark. Neglecting the mass of the stick itself, find the mass of the blob at the 100 cm mark so that the meterstick to be in balance in the horizontal position.
9. A certain 0.80 m cord will break when a 25 kg block is suspended from it. Suppose the cord is attached to a 0.50 kg ball, which is swung so fast in a circle that the cord is nearly horizontal. (a) At what linear speed will the cord break? (b) If the ball is to be swung with a speed of $25 \mathrm{~m} / \mathrm{s}$, what is the shortest length of the same kind of cord that can be used?
