Department of Mechanical Engineering (NITC)

S1ME **ZZ1001D ENGINEERING MECHANICS** **Tutorial Test 4-Set 3**

Time: One Hour Maximum Marks: 20

1. Find the supporting forces at *A* and *B* (Fig. 1). At *D* there is a cylinder weighing 300 N.
2. The member shown in Fig. 2 is pin-connected at *A* and rests against a smooth support at *B*. Determine the horizontal and vertical components of reaction at the pin *A*.

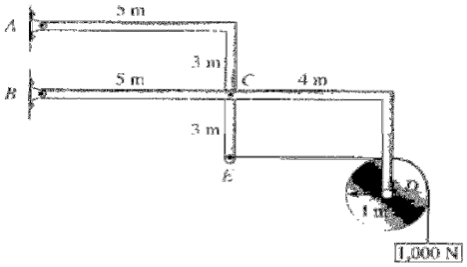

Figure 1

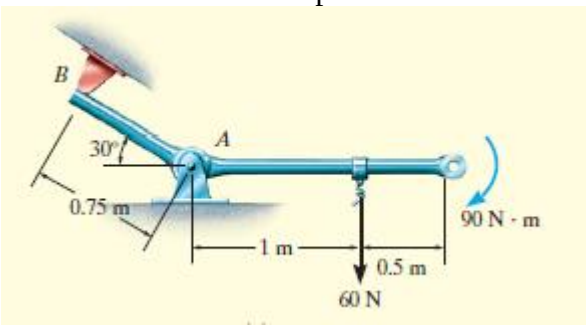

figure 2

----------P.T.O----------

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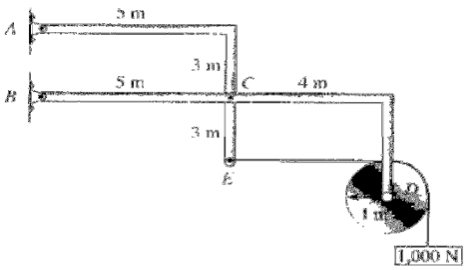

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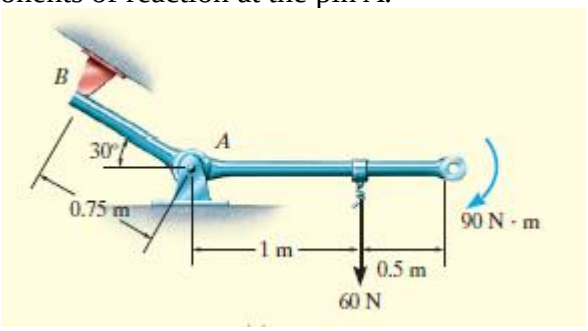


figure 2

----------P.T.O----------

3. The box wrench in Fig. 3 is used to tighten the bolt at *A*. If the wrench does not turn when the load is applied to the handle, determine the torque or moment applied to the bolt and the force of the wrench on the bolt.
4. Two smooth pipes, each having a mass of 300 kg, are supported by the forked tines of the tractor in Fig.4. Draw the free-body diagrams for each pipe and both pipes together.

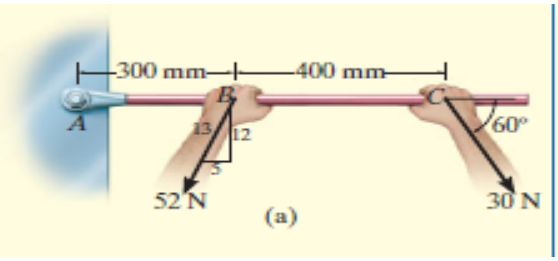
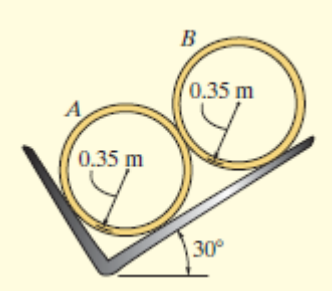


Figure 3



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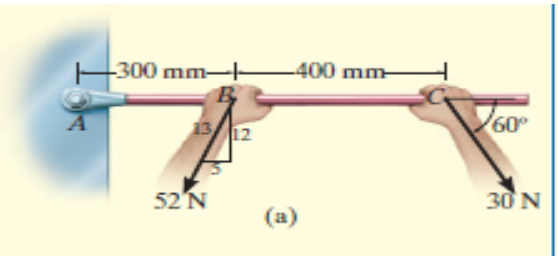

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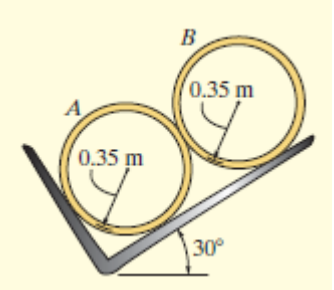

figure 4