Department of Mechanical Engineering (NITC)

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

Time: One Hour Maximum Marks: 20

1. The plate has a thickness of 0.5 in. and is made of steel having a specific weight of 490 lb/ft^3. Determine the horizontal and vertical components of reaction at the pin *A* and the force in the cord at *B.*

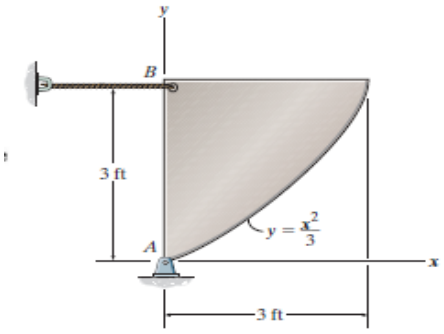

Figure 1

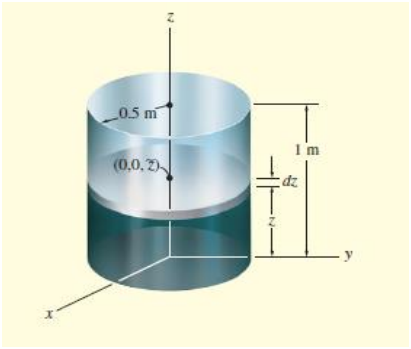

Figure 2

2. Determine the location of the centre of mass of the cylinder shown in Fig. 2 if its density varies directly with the distance from its base, i.e., density = 200z kg/m^3.

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

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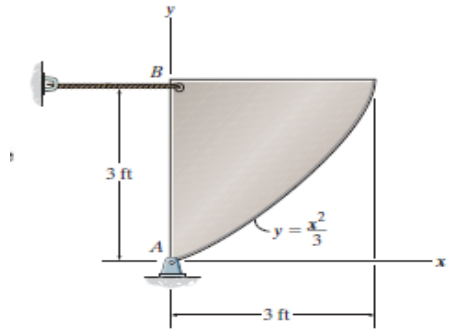

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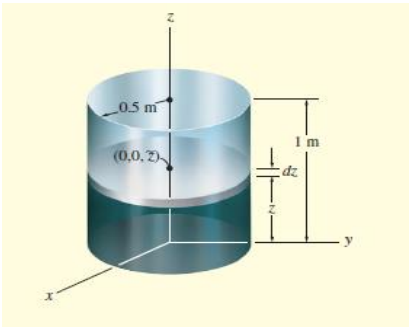

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3. A plate of thickness 0.25ft and specific weight 180 lb/ft. determine the center of gravity and tension in chords used for supports fig3
4. Express the position vector **r** in the Cartesian vector form; then determine its magnitude and coordinate direction angles. Fig 4

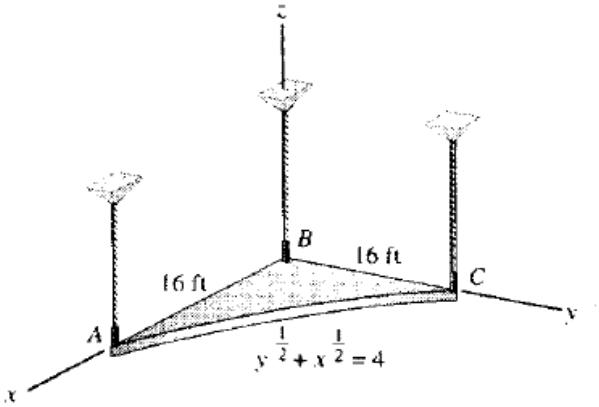
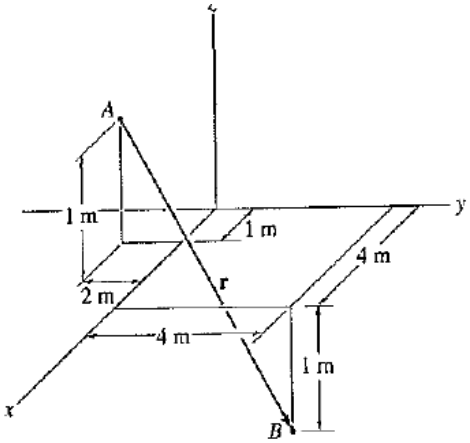


Figure 3



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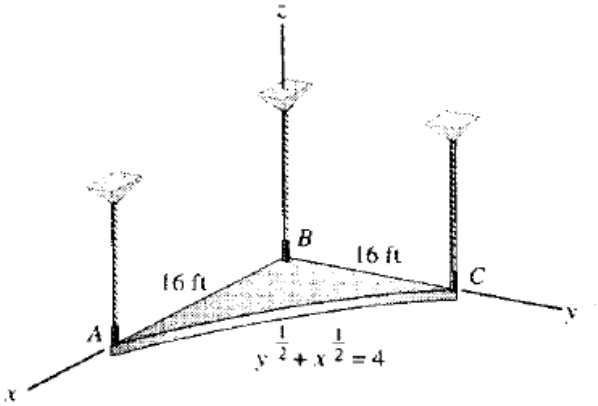

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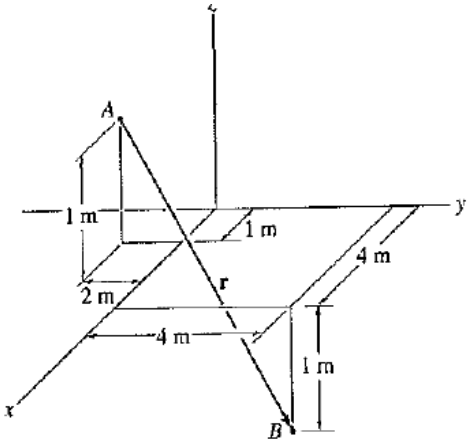

Figure 4