NAME

Fluids-ID

Quiz 3. A 6-ft-diameter cylindrical drainage conduit of the type shown in figure is half full of water at rest. The length of the drainage (into to the paper) is 1-ft. Air pressure inside the drainage is same pressure as the atmospheric pressure. (Υ_{water}=62.4 lb/ft³)

(a) Determine the magnitude and location of the horizontal component of the force on curved section BC of the conduit wall.

(Hint: Moment of inertia for a rectangle $I = \dfrac{bh^3}{12}$)

(b) Determine the magnitude and location of the vertical component of the force on curved section BC of the conduit wall. (Hint: Centroid of quarter circle area $\dfrac{4R}{3\pi}$)

Note: Attendance (+2 points), Format (+1 point)