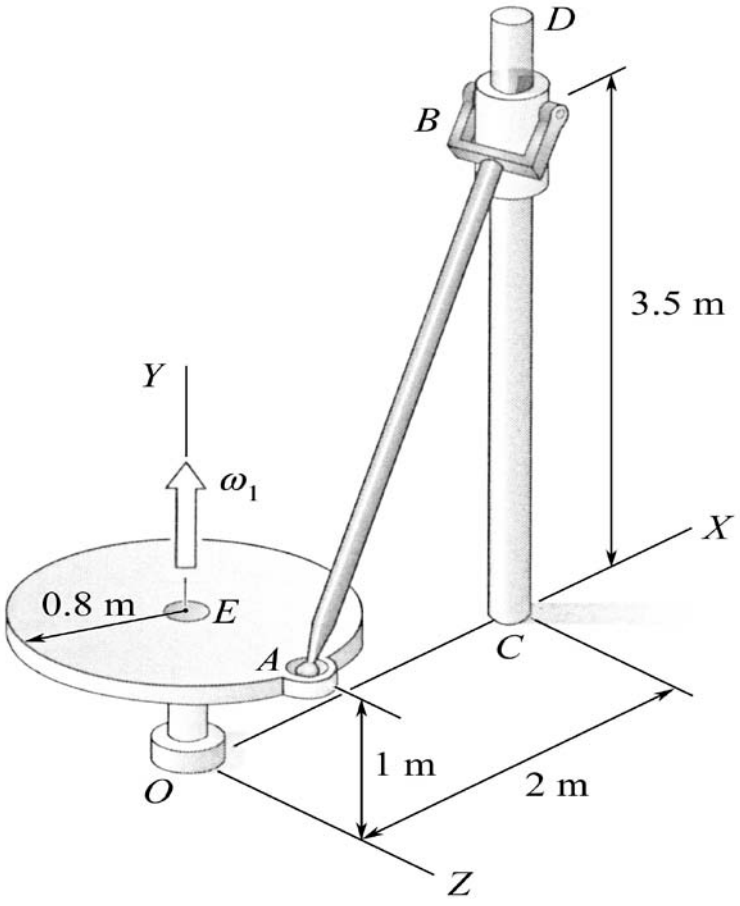
MEEG 4003 Quiz #9

(30 pts) The connecting rod *AB* is attached to a disk by a ball-and-socket joint at *A* and to a collar at *B* by a clevis as shown. The disk is mounted on a vertical shaft at *O* and rotates with a constant angular velocity $\boldsymbol{\omega}_1 = 29\mathbf{J}$ rad/s. For the instant at which the joint *A* passes through the position (0, 1, −0.8) m, determine (*a*) the velocity $\mathbf{v}_B$ of the collar *B*, (*b*) the angular velocity $\boldsymbol{\omega}_{AB}$ of the rod *AB*.



$\mathbf{v}_B = -18.56\mathbf{J}$ m/s

$\boldsymbol{\omega}_{AB} = 3.2\mathbf{I} + 4\mathbf{J} - 8\mathbf{K}$ rad/s