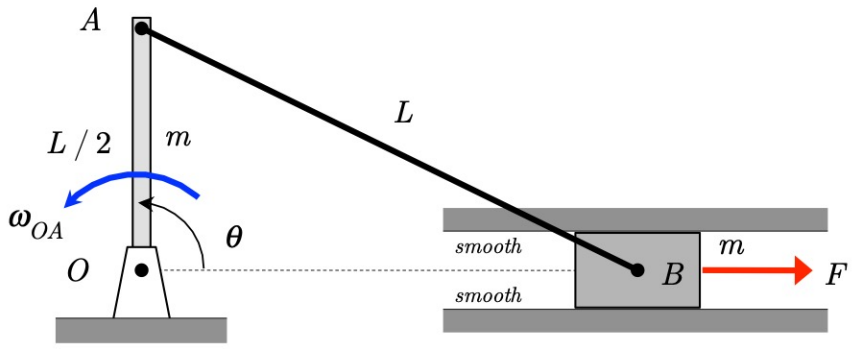
Homework H5.F

Given: The mechanism shown below is made up of: a thin homogeneous link OA (of mass m and length $L/2$), link AB (having negligible mass and of length L) and slider B (of mass m). Link OA is pinned to ground at end O. Slider B is constrained to move along a straight guide. Link AB connects link OA to B, as shown. A force F acts to the right on slider B. At the instant shown, $\theta = 90°$ and link OA is rotating in the counterclockwise sense with an angular speed of ω_{OA}. Note that the system moves in a horizontal plane.

Find: Determine the acceleration of slider B.



HORIZONTAL PLANE

Use the following parameters in your analysis: $m = 5$ kg, $L = 0.5$ m, $F = 75$ N and $\omega_{OA} = 2$ rad/s.