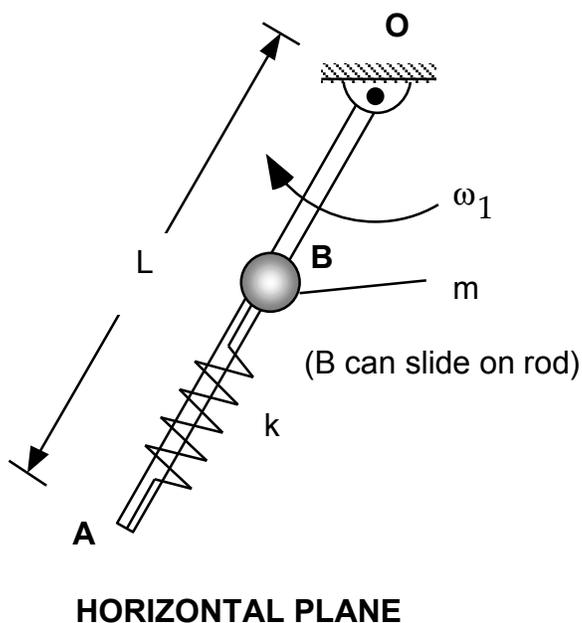


Homework H4.S

Given: Bar OA (having negligible mass and length L) is pinned to ground at point O in such a way that the bar moves in a HORIZONTAL plane. Particle B (with a mass of m) is able to slide without friction on OA, and is attached to A with a spring having a stiffness of k and an unstretched length of $L/2$. At the instant shown, bar OA is rotating CW with a speed of ω_1 , particle B is not moving relative to bar OA and the spring is unstretched.

Find: Determine the velocity of particle B after it has moved an additional distance of b outward on the bar.



Use the following parameters in your analysis: $\omega_1 = 9 \text{ rad/s}$, $m = 10 \text{ kg}$, $L = 3 \text{ m}$, $k = 500 \text{ N/m}$ and $b = 0.5 \text{ m}$.