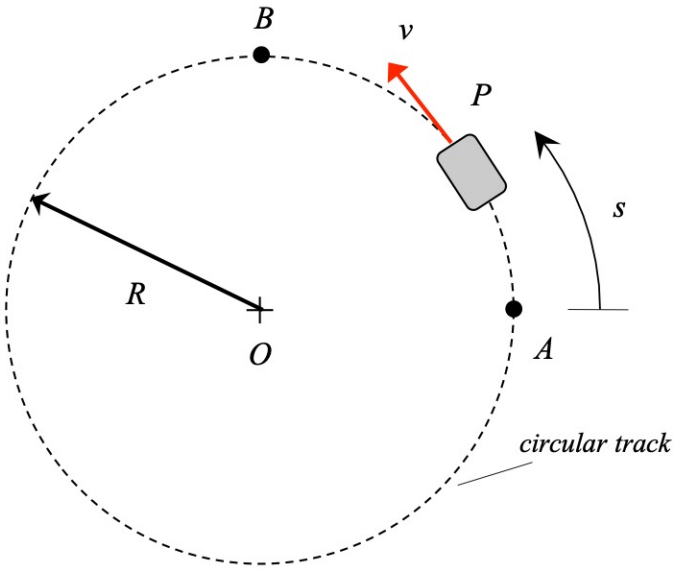
Problem H1.C

Given: An automobile P is traveling along on a circular track of radius R. A position A on the track, the automobile has a speed of v_A. At this position, the driver of automobile applies the brakes with the speed of the automobile changing with distance s traveled along the track according to the following equation: $v(s) = v_A \cos(bs)$, where s is given in meters.

Find: Determine the magnitude of the acceleration for the driver when the automobile reaches position B on the track where B is a quarter of the distance around the track from position A.



Use the following parameters in your analysis: $b = 0.001/\text{m}$, $R = 500$ m and $v_A = 80$ m/s.