Homework H.2.G

Given: Wedge E, having an incline angle of θ , is constrained to move along a horizontal surface. A disk having an outer radius of R is able to roll without slipping on the incline of the wedge. Bar A is constrained to move in the vertical direction by two parallel guides. This bar is brought into contact with the top surface of the disk, with the disk being able to roll without slipping on the bar. The bar is given downward motion with a speed of v_A . Assume that the wedge and disk, as well as the disk and bar, remain in contact for all time.

Find: For this problem:

- (a) Determine the location of the instant center for the disk.
- (b) Determine the speed of the wedge E.



Use the following parameters in your analysis: $\theta = 36.87^{\circ}$, R = 0.5 m and $v_A = 10$ m/s.