

**Homework H.3.C**

**Given:** Arm AD is made from a quarter circular arc bar of radius  $R$  and is pinned to fixed ground at end A. Slotted arm BE is pinned to fixed ground at end B with pin B located directly below pin A, as shown. A pin at end D of the curved arm is allowed to slide within the slot of arm BE. At the position shown, arm BE is horizontal, and arm AD is rotating CW with a constant rate of  $\omega_{AD}$ .

**Find:** For this position,

- Determine the angular velocity of arm BE and the value of  $\dot{d}$ .
- Determine the angular acceleration of arm BE and the value of  $\ddot{d}$ .

HINT: Use an observer attached to the slotted arm BE, and relate the kinematics of points B and D through the moving reference frame kinematics equations.

