

Two rods, AB and BC, are connected and moving. A pin at point A follows the vertical slot shown. Find the ICZV for each rod at the instant shown. If rod BC has an angular velocity of 3 rad/s, find the angular velocity of rod AB.

$$\vec{\omega}_{AB} ?$$

$$\text{Assume } \vec{\omega}_{AB} = \omega_{AB} \hat{k}$$

$$\vec{v}_B = \vec{\omega}_{BC} \times \vec{r}_{B/C}$$

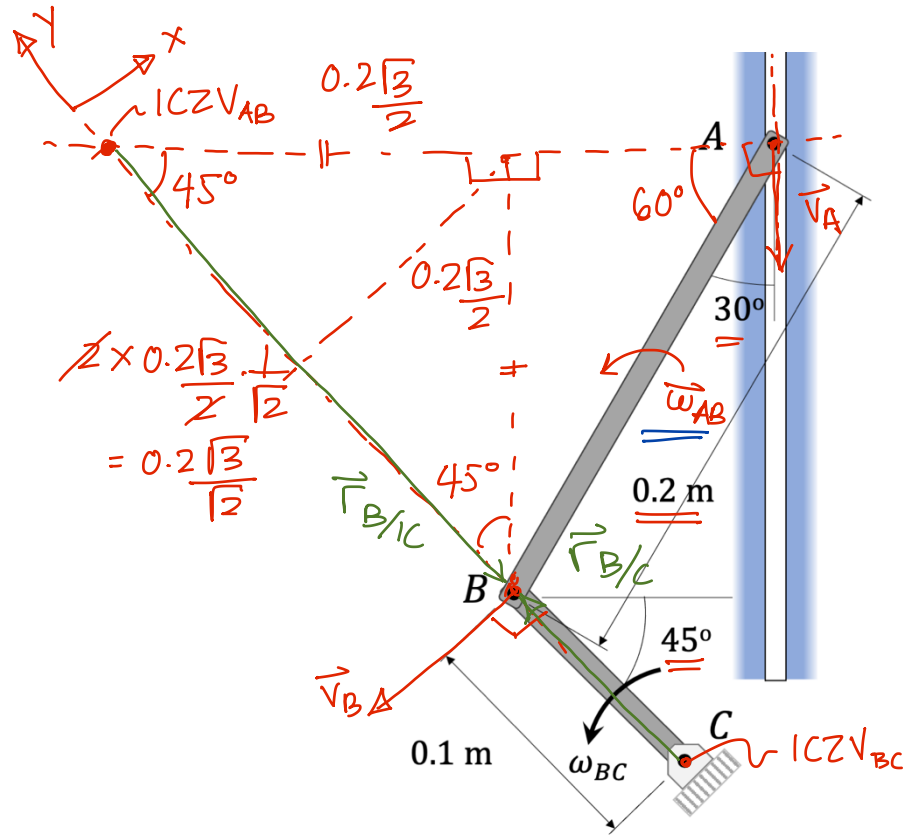
$$\vec{\omega}_{BC} = 3 \text{ rad/s } \hat{k}$$

$$\vec{r}_{B/C} = 0.1 \text{ m } \hat{j}$$

$$\vec{v}_B = 3 \hat{k} \times 0.1 \hat{j}$$

$$= -0.3 \text{ m/s } \hat{i}$$

$$\vec{v}_B = \vec{\omega}_{AB} \times \vec{r}_{B/A}$$



$$\Rightarrow \omega_{AB} = -\frac{0.3}{0.2} \frac{\sqrt{3}}{\sqrt{2}} = -1.22 \text{ rad/s}$$

$$\vec{\omega}_{AB} = -1.22 \text{ rad/s } \hat{k}$$