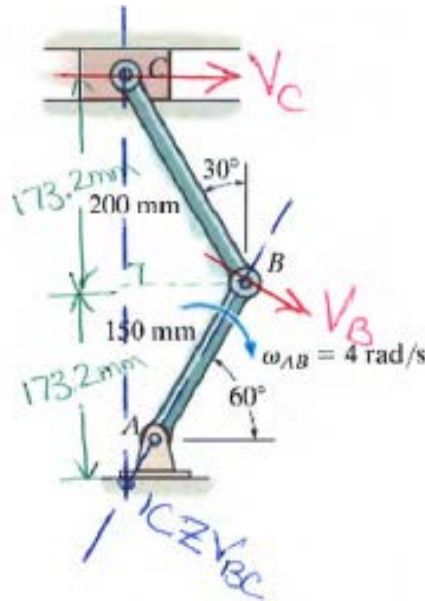


EGM 3420C - Engineering Mechanics Dynamics Review Problems

Problem 4. Bar AB rotates at 4 rad/s in the clockwise direction as shown. Determine the velocity of point C .

From bar AB :

$$\begin{aligned} V_B &= \omega_{AB} r_{B/A} \\ &= (4)(150) \\ &= \underline{600 \text{ mm/s}} \end{aligned}$$



From bar BC :

$$V_B = \omega_{BC} r_{B/I_C}$$

$$\omega_{BC} = V_B / r_{B/I_C}$$

$$\omega_{BC} = \frac{600 \text{ mm/s}}{200 \text{ mm}}$$

$$\omega_{BC} = \underline{3 \text{ rad/s}}$$

Using similar triangles
 $r_{B/I_C} = \text{length of bar } BC$
 $= 200 \text{ mm}$

$$V_C = \omega_{BC} r_{C/I_C} = (3)(173.2 + 173.2) = 1039.2 \text{ mm/s}$$

Answer: $V_C = 1.039 \text{ m/s} \rightarrow$