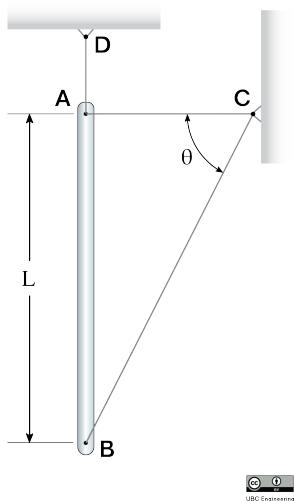# 22-R-KM-TW-4

The system is initially at equilibrium when the cord AD is cut. After a short time, the rod is rotating with an angular velocity of $\omega = 2 \ rad/s$ about the point C. If the angle $\theta = 60°$ and the length of the rod $L = 1 \ m$, find the speeds of the points A and B.

Solution:

$$v = \omega r$$

$$\tan \theta = \frac{L}{r_{AC}} \Rightarrow r_{AC} = \frac{L}{\tan \theta}$$

$$\sin \theta = \frac{L}{r_{BC}} \Rightarrow r_{BC} = \frac{L}{\sin \theta}$$

$$v_A = \omega \frac{L}{\tan \theta} = \frac{(2)(1)}{\tan 60°} = 1.15 \ m/s$$

$$v_B = \omega \frac{L}{\sin \theta} = \frac{(2)(1)}{\sin 60°} = 2.31 \ m/s$$