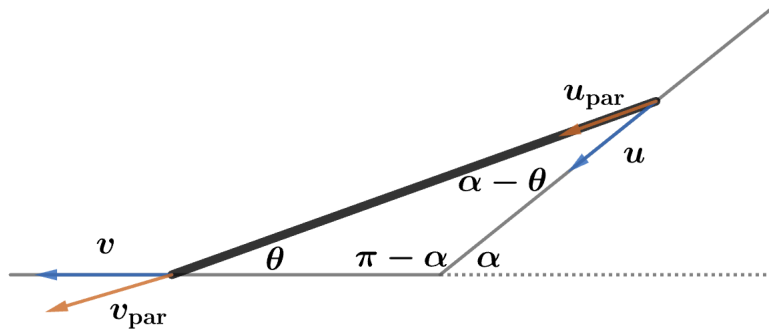


2017 F=ma Exam: Problem 16

Kevin S. Huang



Let the velocity of the end in contact with the wall be u . Since rod is a rigid object with fixed length, the projection onto the rod (parallel component) of the velocities at the ends must be the same:

$$\begin{aligned} v_{\text{par}} &= u_{\text{par}} \\ v \cos \theta &= u \cos(\alpha - \theta) \end{aligned}$$

Thus,

$$u = \frac{v \cos \theta}{\cos(\alpha - \theta)}$$

so the answer is D.