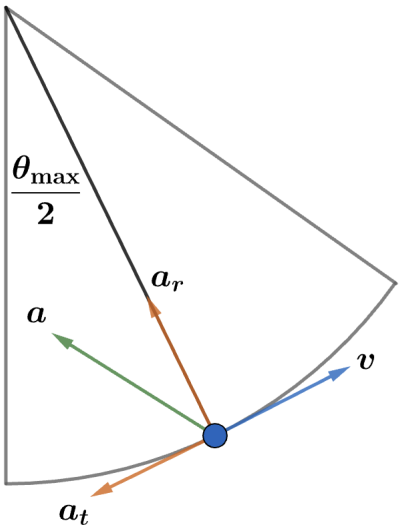
2015 F=ma Exam: Problem 13

Kevin S. Huang



The pendulum is undergoing circular motion, so the radial acceleration $\vec{a}_r$ points toward the center of the circle. The pendulum is slowing down as it moves higher so the tangential acceleration $\vec{a}_t$ points opposite the velocity. The total acceleration

$$\vec{a} = \vec{a}_r + \vec{a}_t$$

is the vector sum of these two components. Thus, the answer is $\boxed{\text{D}}$.