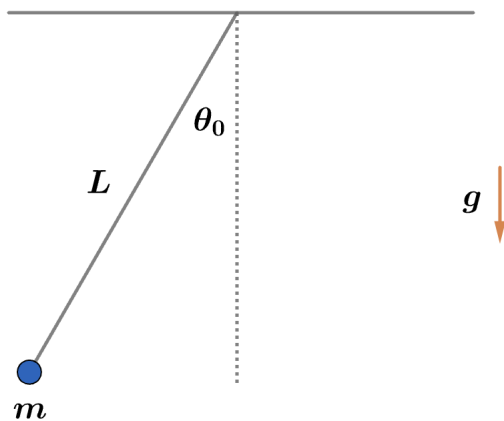


2013 F=ma Exam: Problem 21

Kevin S. Huang



By dimensional analysis, the period of a simple pendulum is given by

$$T = f(\theta) \sqrt{\frac{L}{g}}$$

We are given

$$T_0 = f(\theta_0) \sqrt{\frac{L}{g}}$$

For the new pendulum of length $4L$ with the same amplitude θ_0 ,

$$T = f(\theta_0) \sqrt{\frac{4L}{g}} = 2T_0$$

so the answer is A.