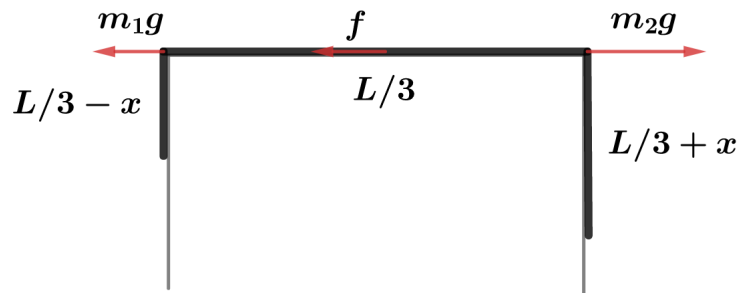


2018B F=ma Exam: Problem 20

Kevin S. Huang



To stay at rest, we have

$$m_1g + f = m_2g$$

so

$$f = (m_2 - m_1)g \leq \mu N$$
$$\rho \left[\left(\frac{L}{3} + x \right) - \left(\frac{L}{3} - x \right) \right] g = 2\rho xg \leq \mu \left(\frac{\rho Lg}{3} \right)$$

Hence,

$$x \leq \frac{\mu L}{6} = \frac{L}{42}$$