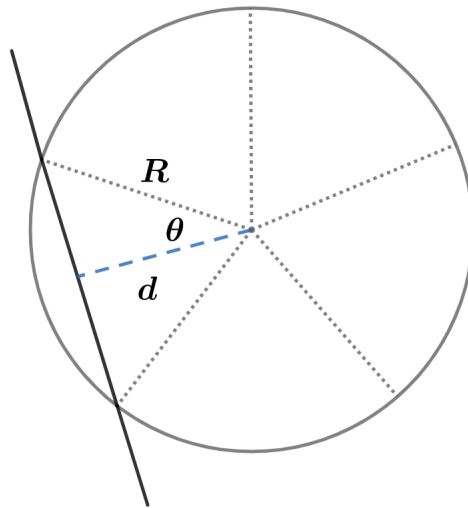


# 2020A F=ma Exam: Problem 21

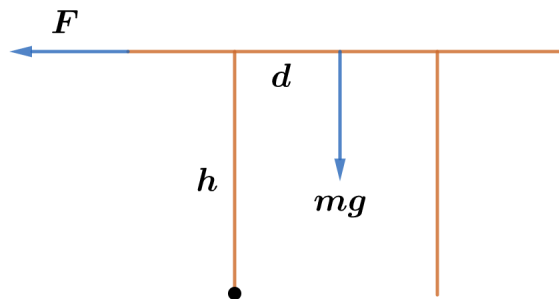
Kevin S. Huang



It is easiest to tip over the table about an axis through two adjacent legs. The distance  $d$  from the center of the table to this axis is

$$d = R \cos \theta = R \cos \left( \frac{2\pi}{2N} \right)$$

where  $N$  is the number of table legs.



Balancing torques, we have

$$Fh = mgd$$
$$F = \frac{mgR}{h} \cos \left( \frac{\pi}{N} \right)$$