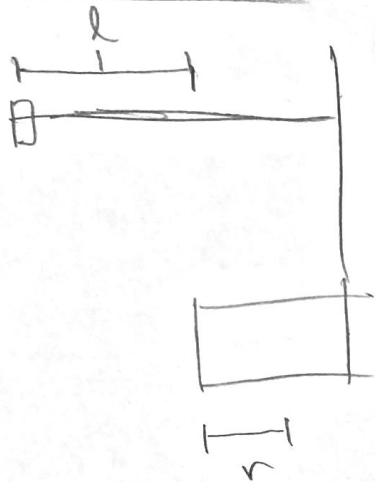
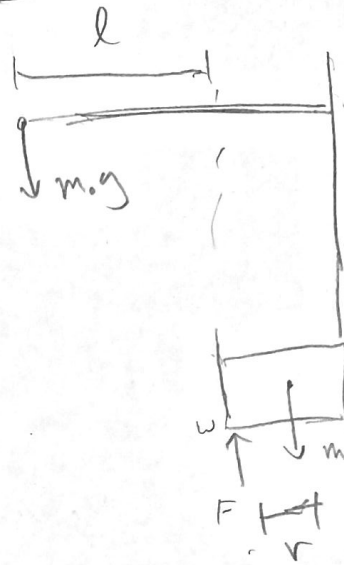


Overall diagram



FBD



Key insight
that back
wheel leaving
floor implies
zero force

$\Sigma M_w = 0$ ← static Eq.

$$m.g.l - m.r.g.r = 0$$

$$m.g.l = m.r.g.r$$

$$l = \frac{m.r.g}{m.g} r$$

$$l = \frac{m_r}{m_o} r$$