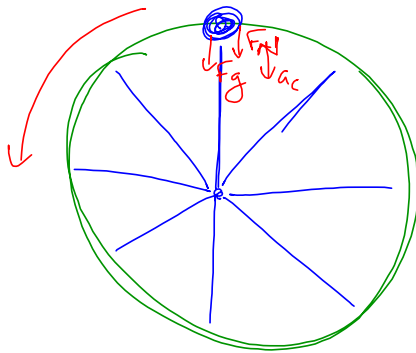


## Example 5



How many revolutions per minute would a 15.0 m diameter Ferris wheel need to make for the passengers to feel 'weightless' at the topmost point?



$$\Sigma F_y = -(F_N + F_g)$$

$$-M a_c = -(F_N + F_g)$$

$$M a_c = F_N + F_g$$

$$m \frac{v^2}{r} = \cancel{F_N} + F_g$$

$$\times \frac{v^2}{r} = \cancel{m} g$$

$$\frac{v^2}{r} = g$$

① solve for  $v$

\*rpm

$$\frac{\# \text{ rev}}{s} \Big| \frac{60 \text{ s}}{1 \text{ min}}$$

$$f = \frac{1}{T} \text{ Hz} \rightarrow \frac{\text{rev}}{s}$$

\* solving for  $f$

$$\textcircled{2} v = \frac{2\pi r}{T}$$

\* solve for  $T$