

Vertically:  $F_{Ny} = F_g$        $\tan \theta = \frac{F_{Nx}}{F_{Ny}}$

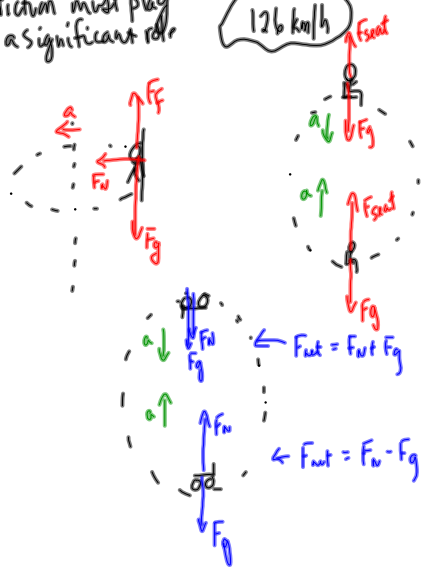
Horizontally:  $F_{\text{net}} = m\vec{a}$        $\tan \theta = \frac{F_{Nx}}{mg}$   
 $F_{Nx} = m \frac{v^2}{r}$        $F_{Nx} = mg \tan \theta$

$mg \tan \theta = \frac{mv^2}{r}$   
 $v^2 = gr \tan \theta$   
 $v^2 = (9.8 \text{ m/s}^2)(382 \text{ m})(\tan 18.0^\circ)$

$v = 34.9 \text{ m/s}$

Since his average speed was 378.11 km/h, friction must play a significant role

$34.9 \frac{\text{m}}{\text{s}} \left( \frac{1 \text{ km}}{1000 \text{ m}} \right) \left( \frac{3600 \text{ s}}{1 \text{ h}} \right)$   
 $126 \text{ km/h}$



- TODO:
- ① pp/559
  - ② pp/566