Example: What is maximum speed for car rounding a flat circular track with radius $r = 50\text{m}$ and a $\mu_s = 0.6$ between tire and road. $M_{\text{car}} = 1500\text{kg}$

Top view

View from behind car

\[
\sum F_{\text{radial}} = M_s N = \frac{\mu v^2}{r}
\]

\[
\sum F_y = N - mg = 0
\]

\[
M_s \frac{mg}{r} = \frac{\mu v^2}{r}
\]

\[
V_{\text{max}} = \sqrt{M_s rg}
\]

\[
V_{\text{max}} = 17.1\text{m/s}
\]