- How fast can a 1200kg car travel around a 100m radius arc if the coefficient of _____ friction is 0.8?
-
-
- What if the car's mass doubled, but all other factors remained the same?

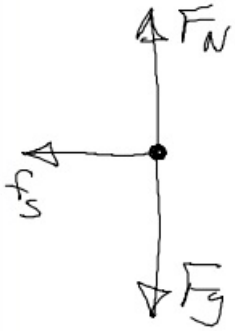
$s_{max} = ?$

$\Sigma F_y = ma_y$

$F_N - F_g = ma_y$

$a_y = 0$

so $F_N = F_g = mg$



$\Sigma F_c = ma_c$

$f_{s(max)} = \frac{ms^2}{r}$

$\mu_s F_N = \frac{ms^2}{r}$

$\mu_s mg = \frac{ms^2}{r}$

$r\mu_s g = s^2$

$\sqrt{r\mu_s g} = s$

$\sqrt{(100)(0.8)(9.8)} = s$

$28 m/s = s$