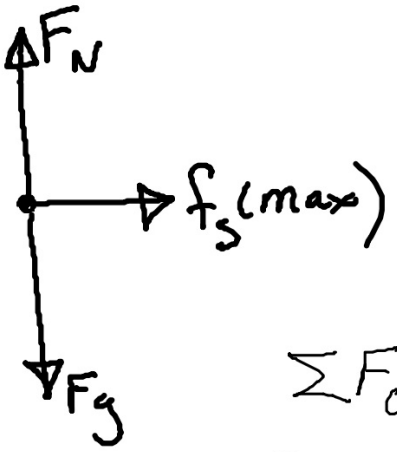
43. $r_{min} = ?$ $\mu_s = 0.32$

$s = 8.05 \text{ m/s}$



(for a right turn at max speed for a radius)

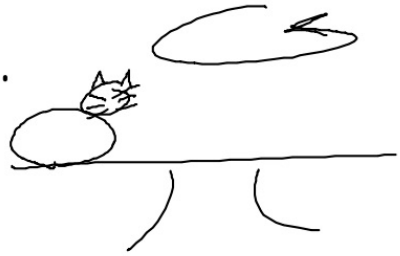
$\Sigma F_c = ma_c$ $\quad F_N - F_g = ma_y$

$f_s max = \frac{ms^2}{r}$ $\quad F_N = F_g = mg$

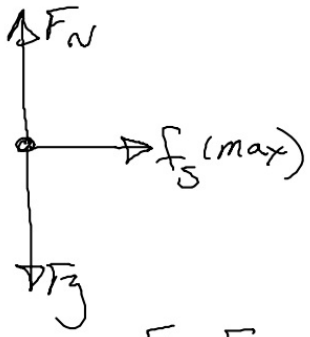
$\mu_s F_N = \frac{ms^2}{r} \rightarrow r = \frac{s^2}{\mu g} = \frac{(8.05)^2}{.32(9.8)}$

$= 20.7 \text{ m}$

41.



$\mu_s = ?$



$$F_N - F_g = ma_y$$

$a_y = 0$

$$F_N = F_g$$

$$\Sigma F_c = ma_c$$

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

$$\mu_s F_N = \frac{m\left(\frac{2\pi r}{T}\right)^2}{r}$$

$$\mu_s mg = m\left(\frac{4\pi^2 r}{T^2}\right)$$

$$\mu_s = \frac{4\pi^2 r}{gT^2}$$