

i.e. WHEEL WILL SKID BEFORE A WHEELIE WILL OCCUR.

E (10)

So... WHAT IS MAX ACCLN POSSIBLE?

Just before wheel spin

$$F_B = \mu_s N_B$$

$$\mu_s = 0.8$$

from ① $N_A = W - N_B = mg - N_B$

from ② $ma_G = F_B = \mu_s N_B$

then ③ $(N_A)(1.6) - W(0.7125) = -ma_G(0.7125)$

Becomes

$$(mg - N_B)(1.6) - mg(0.7125) = -\mu_s N_B (0.7125)$$

$$\Rightarrow N_B = mg \left[\frac{0.7125 - 1.6}{-1.6 + (0.8)(0.7125)} \right] = 1690 \text{ N}$$

$$\therefore F_B = \mu_s N_B = (0.8)(1690 \text{ N}) = 1352 \text{ N}$$

$$\therefore a_G = \frac{F_B}{m} = \frac{1352}{200} = \underline{\underline{6.76 \text{ m/s}^2}}$$

NOTE, AT THIS POINT

$$N_A = mg - N_B$$

$$= (200)(9.81) - 1690 = 272 \text{ N}$$

Max accln & N_A still > 0

\Rightarrow wheelie impossible