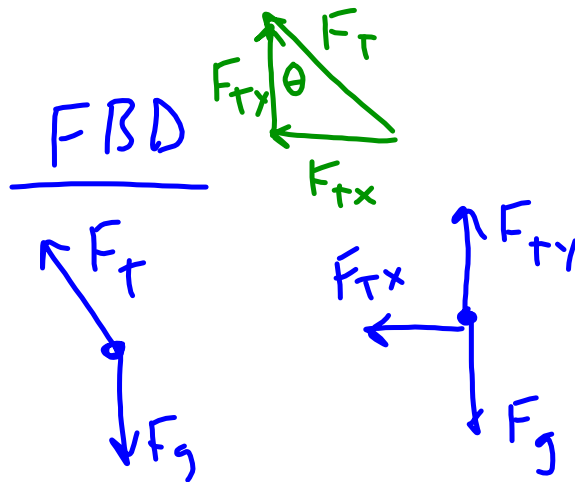
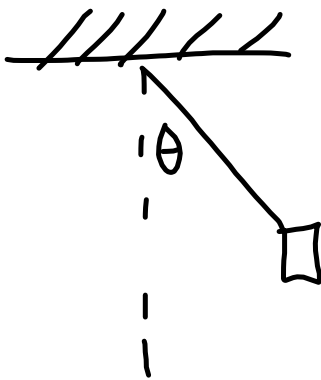


QUIZ - REVIEW

A 0.25-kg flying pig travels in a circular path with a period of 3.28 s and radius of 1 m. Find the angle the string of the flying pig makes with the vertical.



$$\tan \theta = \frac{F_{Tx}}{F_{Ty}}$$

$$\theta = \tan^{-1} \left(\frac{F_{Tx}}{F_{Ty}} \right)$$

$$= \tan^{-1} \left(\frac{0.92 \text{ N}}{2.45 \text{ N}} \right)$$

$$= 20.5^\circ$$

$$F_{Ty} = F_g$$

$$= 2.45 \text{ N}$$

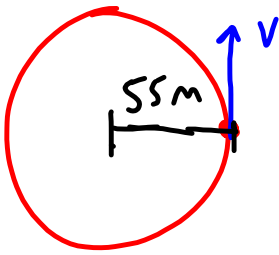
$$F_{Tx} = F_c = \frac{mv^2}{r}$$

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

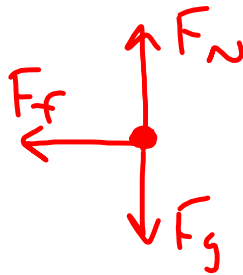
$$= 0.92 \text{ N}$$

A 900-kg car is moving through a turn that has a radius of 55 m. If the coefficient of friction is 0.68, what is the maximum speed the car may move through the turn without sliding?

TOP VIEW



FRBD



$$F_c = \frac{mv^2}{r}$$

$$v = \sqrt{\frac{F_c r}{m}}$$

$$= 19.2 \text{ m/s}$$

$$F_c = F_f = \mu F_N$$

$$= 5998 \text{ N}$$

$\frac{M_1}{}$	$\frac{M_2}{}$	$\frac{r}{}$	$\frac{F_g}{}$	$\frac{g}{}$
$2m_1$	$3m_2$	$\frac{1}{5}r$	$\frac{G(2m_1)(3m_2)}{(\frac{1}{25})r^2} = 150F$	$\frac{G(3m_2)}{(\frac{1}{25})r^2} = 75g$
$5m_1$	m_2	$3r$	$\frac{G(5m_1)(m_2)}{9r^2} = \frac{5}{9}F$	$\frac{Gm_2}{9r^2} = \frac{1}{9}g$
m_1	$6m_2$	$\frac{1}{3}r$	$\frac{G(m_1)(6m_2)}{(\frac{1}{9})r^2} = 54F$	$\frac{G(6m_2)}{(\frac{1}{9})r^2} = 54g$