

$v = \frac{2\pi r}{T}$
 $\omega = ?$
 $r = 20m$
 $m = 1200kg$
 $\Sigma F_y = 0, F_N = F_g$
 $F_N = F_g = 11760N$
 $F_{net} = m \cdot a_c$
 $F_{net} = m \cdot \frac{v^2}{r}$
 $F_{net} = (1200) \left(\frac{v^2}{20} \right)$
 $F_{net} = 6577.3N$
 $F_{net} = F_f$
 $6577.3N = F_f = \mu_k F_N$
 $6577.3 = \mu_k \cdot 12009.8$
 $\mu_k = 0.557$

Nov 6-8:12 AM

$F_N = T - F_g$

Nov 6-8:28 AM

$r = 20m$
 $m = 1200kg$
 $F_g = 11760N$
 $F_{gy} = 11760 \cos 12^\circ = 11503.02N$
 $F_{gx} = 11760 \sin 12^\circ = 2445.04N$
 $F_{net} = F_{gx}$
 $F_{net} = F_{gx} + F_f$
 $m \cdot a_c$
 $m \cdot \frac{v^2}{r} = 2445.04N$
 $1200kg \cdot \frac{v^2}{20} = 2445.04N$
 $(v^2 = 40.75)$
 $v = 6.37m/s$

Nov 6-8:34 AM

$r = 50m$
 $m = 1200kg$
 $F_g = mg \cos \theta$
 $F_{gx} = mg \sin \theta$
 $F_{net} = m \cdot a_c$
 $F_{net} = (1200) \left(\frac{v^2}{50} \right)$
 $F_{net} = 5400N$
 $F_{net} = F_{gx} \leftarrow \text{only case of my } \theta$
 $mg \sin \theta = 5400$
 $\sin \theta = \frac{5400}{(1200)(9.8)}$
 $\sin \theta = 0.457$
 $\sin^{-1}(0.457) = \theta = 27.33^\circ$

Nov 6-8:44 AM

$r = 45^\circ$
 12°
 $F_{net} = F_{gx}$
 $m \cdot a_c = mg \sin 17^\circ$
 $\frac{v^2}{45} = (9.8)(\sin 17^\circ)$
 $v^2 = 128.34$
 $v = 11.35m/s$

Nov 6-8:53 AM

$r = 60m$
 12°
 $\Sigma F_y = 0$
 $F_N = F_{gy}$
 $F_f = mg \cos 17^\circ$
 $F_{net} = F_f + F_{gx} = m \cdot a_c$
 $m F_f + mg \sin 17^\circ = m \cdot \frac{v^2}{r}$
 $(9.8)(0.31)(\cos 17^\circ) + (9.8)(\sin 17^\circ) = \frac{v^2}{60}$
 $2.91 + 2.87 = \frac{v^2}{60}$
 $5.78 = \frac{v^2}{60}$
 $v^2 = 346.8$
 $v = 18.62m/s$

Nov 7-7:34 AM

$V = 20 \text{ m/s}$
 find the radius of the smallest circle you can make.
 $\mu = 0.51$
 $F_g = F_N \cos \theta$
 $F_N = Mg \cos \theta$
 $a_c = \frac{V^2}{r}$
 $F_{net} = F_f + F_{gx} = m \cdot a_c$
 $\mu F_N + Mg \sin \theta = m \cdot a_c$
 $(0.51)(Mg \cos \theta) + Mg \sin \theta = M \cdot \frac{V^2}{r}$
 $4.91 + 1.87 = \frac{(20)^2}{r}$
 $6.78 = \frac{400}{r}$
 $6.78 \cdot r = 400$
 $r = \frac{400}{6.78}$
 $r = 58.99 \text{ m}$

Nov 7-7:49 AM

$\mu = 0.47$
 $r = 39 \text{ m}$
 $V = 15 \text{ m/s}$
 $M(g)(\cos \theta) + g \sin \theta = \frac{V^2}{r}$

Nov 7-7:58 AM

$V = \frac{2\pi r}{T}$
 $20 = \frac{2\pi(19)}{T}$
 $10T = 19\pi$
 $T = 1.9\pi$
 $T = 5.97 \text{ s}$
 $5.97(20)$
 119.4
 18511.58
 Find $F_N + F_{N, \text{bottom}}$
 6751.58 N
 Top:
 $F_{net} = F_N + F_g = m \cdot a_c$
 $F_N + (5880) = 600 \left(\frac{20^2}{r} \right)$
 $F_{net} = F_N - F_g = m \cdot \frac{V^2}{r}$
 $F_N = M \frac{V^2}{r} + F_g$

Nov 7-8:07 AM