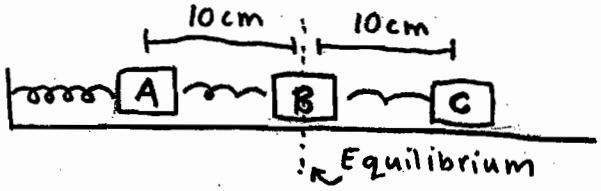
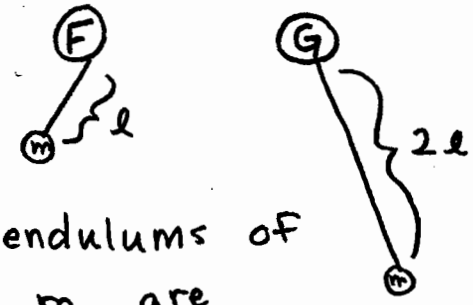
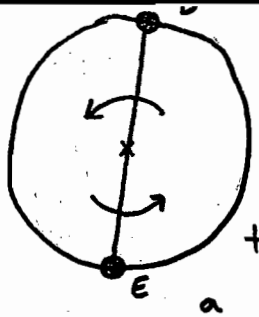


A mass oscillates back and Forth as shown above. If $K = 120\ N/m$, what is the speed at point B? what is the acceleration at point B?



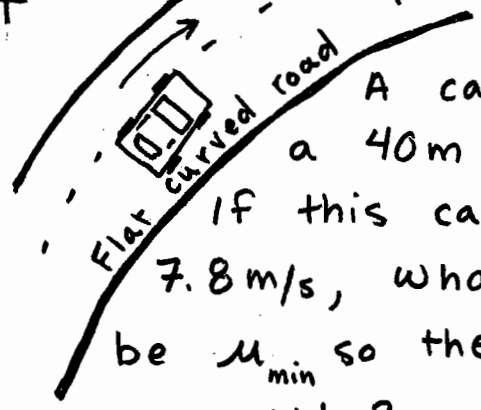
Two pendulums of mass m are pictured here. what will be the ratio of F : G 's period?

+



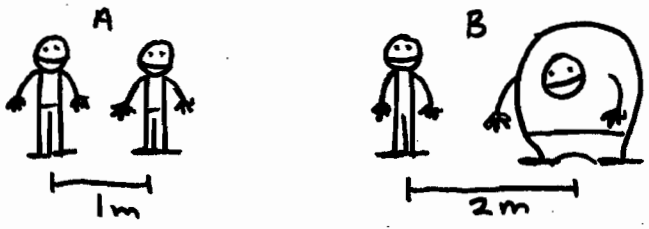
A Ball is swung in a vertical circle of radius 3m. If the 2kg ball creates a tension of 5N at point "D", what is the KE at point "D"? what will be the tension at point "E"?

+



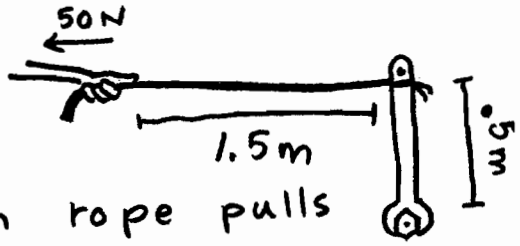
A car rounds a 40m radius turn. If this car travels at 7.8 m/s, what must be μ_{min} so the car does not slide?

+



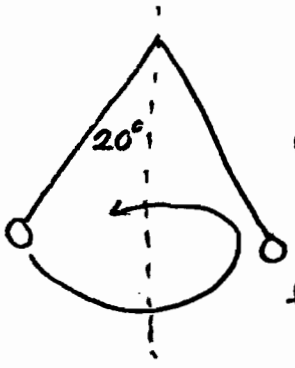
Two students stand 1 meter apart in picture A. IF they moved to 2 m apart, and one student became 5x as massive, what is the new Force between them?

+

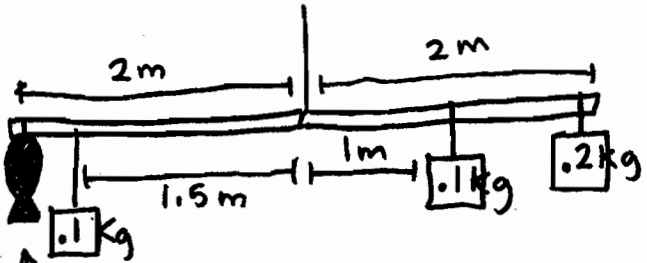


A 1.5 m rope pulls on a wrench. what will be the wrenches torque if the pull is 50N?

+



A Ball swings in a cone shaped path. If the String is 20° from equilibrium, what is ac?



what is the mass of the fish if this system is static?

$\frac{1}{2}Kx^2 = \frac{1}{2}mv^2$

$120 \cdot (.1)^2 = mv^2$ ⇒

$\frac{1.2}{m} = v^2$

$v = \sqrt{\frac{1.2}{m}}$

* .63 m/s

At point B $a = 0$ because $F = -Kx = 0$

0 m

$T = 2\pi\sqrt{\frac{\ell}{g}}$ vs $T = 2\pi\sqrt{\frac{2\ell}{g}}$

T vs $\sqrt{2}\,T$

$1 : \sqrt{2}$

$1 : 1.4$

$\Sigma F = m \cdot g + F_t = F_c$

$m \cdot g + F_t = \frac{mv^2}{r}$

$2_{kg} \cdot g + 5_N = \frac{2v^2}{3}$

$v = 6.1$ m/s

$KE = \frac{1}{2}mv^2$

$KE = \frac{1}{2}2 \cdot (6.1)^2$

$KE = 36.9$ J *

$\Sigma F = F_T - m \cdot g = F_c$

$F_T = F_c + m \cdot g$

$F_f = F_c$

$\mu \cdot N = \frac{mv^2}{r}$

$\mu \cdot m \cdot g = \frac{mv^2}{r}$

$\mu g r = v^2$

$\mu = ?$

$g = 9.8 m/s^2$

$r = 40$ m

$V = 7.8 m/s^2$

* $\mu = .16$

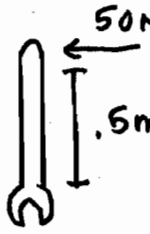
$F = G\frac{mm}{d^2}$ $F_{or} = G\frac{mm}{d^2}$

$F_{new} = G\frac{m \cdot 5m}{(2d)^2}$

$F_{new} = G\frac{m \cdot m \cdot 5}{d^2 \cdot 4}$

$F_{NEW} = \frac{5}{4} G\frac{mm}{d^2}$

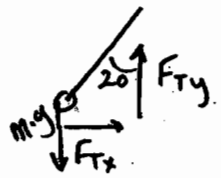
1.25 or $\frac{5}{4}$ x original



$\tau = F \cdot d \sin\theta$

$\tau = 50 \cdot .5 \sin 90$

* $\tau = 25$ Nm



$F_{Tx} = \Sigma F_x = F_c$

$F_{Ty} - mg = \Sigma F_y = 0$

$Fc = F_{Tx}$

$mg = F_{Ty}$

$\text{Tan}\,20 = \frac{O}{A} = \frac{F_{Tx}}{F_{Ty}}$

$\text{Tan}\,20 = \frac{F_c}{m \cdot g} = \frac{m \cdot a_c}{m \cdot g}$

$\text{Tan}\,20 = \frac{a_c}{g}$

* $a_c = 3.6 m/s^2$

$\Sigma\tau = \curvearrowright + \curvearrowright + \curvearrowleft + \curvearrowleft$

$0 = \tau = (m \cdot g) \cdot 2 + (.1 \cdot g) \cdot 1.5 + -(.1 \cdot g \cdot 1) - (.2g)2$

* $m = .175$ kg