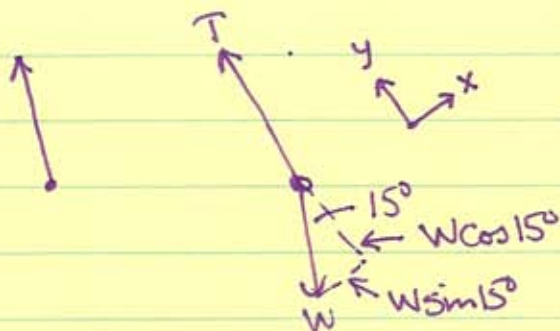


$$3. \text{ Centripetal} = \frac{v^2}{r} = \frac{(.94)^2}{.45} = \underline{\underline{1.96 \text{ m/s}^2}}$$



$$y: T - W \cos 15^\circ = ma = \frac{mv^2}{r}$$

$$T = mg \cos 15^\circ + \frac{mv^2}{r} = (.150)(9.8) \cos 15^\circ + \frac{(.150)(.94)^2}{.45}$$

$$1.4199 + .2945$$

$$\underline{\underline{1.714 \text{ Newtons}}}$$

	$\frac{1}{2}mv^2$	$mgh$
release	0	$(.15)(.45) * (1 - \cos \theta_m)(9.8)$
$15^\circ$	$\frac{1}{2}(.15)(.94)^2$	$(.15)(.45) * (1 - \cos 15^\circ)(9.8)$

release	0	$.6615 - .6615 \cos \theta_m$
$15^\circ$	.06627	$.6615 - .63896$

$$\text{Conservation } .6615 - .6615 \cos \theta_m = .06627 + .6615 - .63896$$

$$.5727 = .6615 \cos \theta_m$$

$$\theta_m = \cos^{-1} \left( \frac{.5727}{.6615} \right) = 30^\circ$$