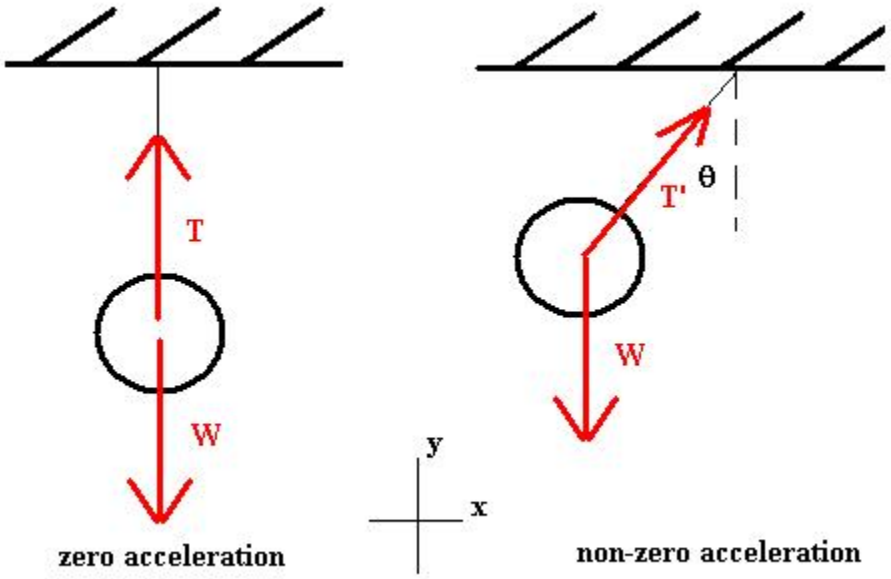
4-2)



For constant (or zero) velocity, the net force must be zero.
For constant acceleration in the horizontal direction, there must be a net force in that direction (x), and no net force in the y direction. So, the ball can not hang straight down, but must be at an angle so that there is a component of T' in the direction of the acceleration.

Find the angle theta at which the ball is oriented.

$\Sigma_n F_{ny} = ma_y = 0$ $T'\cos\theta - gm = 0$ $T'\cos\theta = gm$	$\Sigma_n F_{nx} = ma_x = ma$ $T' \sin\theta = ma$

Now, divide the equations
$T'\sin\theta/T'\cos\theta = ma/gm$
$\tan\theta = a/g$