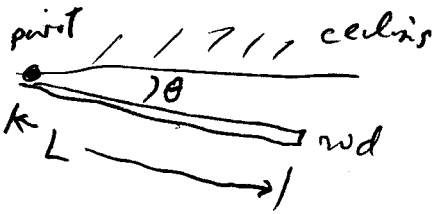
1. A uniform rod 1 m long with mass 0.6 kg is pivoted at one end, as shown, and released from a horizontal position.



A. (5 pts) What is the direction of the torque exerted by gravity about the pivot point?

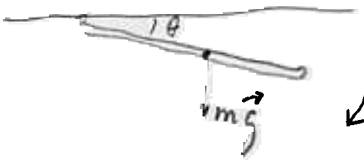
(a) out of the page

**(b) into the page.

(c) to the right.

(d) to the left

Mg is



↙ twists this way, hence by RH rule, into page

B. (5 pts) What is the magnitude of the torque exerted by gravity about the pivot point as a function of the angle θ that the rod makes with the horizontal direction?

(a) $5.8 \cos\theta$ kg·m^2/s^2.

(b) $5.8 \sin\theta \cos\theta$ kg·m^2/s^2.

(c) $2.9 \sin\theta$ kg·m^2/s^2.

**(d) $2.9 \cos\theta$ kg·m^2/s^2.

lever arm $= \frac{l}{2}\cos\theta$.

τ magnitude

$= mg \times$ lever arm

$= mg \frac{l}{2} \cos\theta$

$(0.6\ kg)(10\ m/s^2)(0.5\ m)$

$= 2.9\ kg \cdot m^2/s^2$