5-4)

We'll do this in terms of torques exerted about the hinge along the top. There is a magnetic force exerted on each of the four sides, as well as a hinge force and the weight. The force on the top and the hinge force have no torque since they are applied at the pivot. The forces applied on the two diagonal wires are equal in magnitude and opposite in direction and so cancel. Let's look at the last two.



$$\tan(\theta) = \frac{2IWB}{gm}$$

$$\theta = \arctan\left(\frac{2IWB}{gm}\right)$$