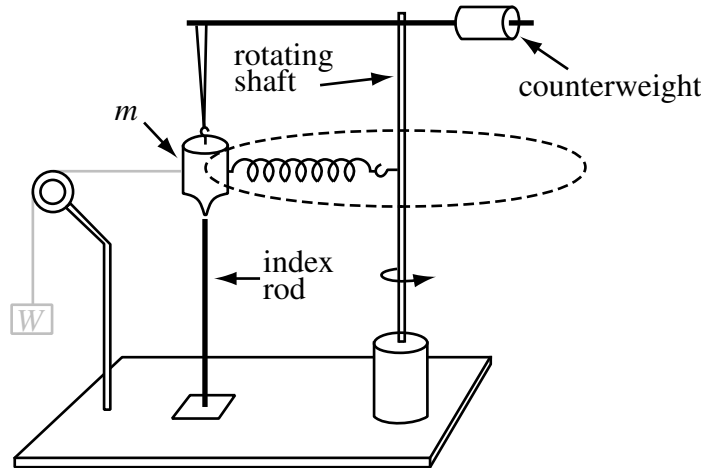


NAME _____ SECTION _____

PRELAB 4: UNIFORM CIRCULAR MOTION

COMPLETE THIS EXERCISE BEFORE COMING TO LABORATORY AND TURN IN AT THE BEGINNING OF LAB 4

[10 points] This week's lab involves an analysis of circular motion. The apparatus you will be using is pictured at right. The hanging mass, labeled m , is attached to a rotating axis via a spring and suspended from a crossbar above via a string. This mass will be moving around the dashed circle at a constant speed, each time passing directly over the index rod. The strings supporting mass m run vertically.



+3 1. Draw a free body diagram for mass m and label each force. (Ignore the hanging weight W that is lightly shaded. It will not be present when mass m is moving.)

+2 2. Describe each force in a sentence (e.g., "The force _____ is produced by _____ acting upon _____").

+5 3. Write down equations for Newton's 2nd Law for the vertical and horizontal directions.