

# Centripetal Force

## Pre-lab Test 10 (10 Points)

Print Name \_\_\_\_\_

Lab Section \_\_\_\_\_ Date \_\_\_\_\_

**Staple your work sheet, if used, to this pre-lab test. You are required to show your calculations! Points will be taken off if your work is not neat and well organized. Be sure to print your name on both sheets.**

**Please note that you do not need an expensive graphing calculator for this course. You are required to have one that does statistical functions and linear regression.**

A spring has a spring constant of  $k = 3.14$  Newtons per centimeter (N/cm). A mass,  $m$ , is attached to the spring and rotates about the point where the spring is anchored. As a result the spring stretches from its equilibrium length (8.88 cm) by an amount that is the same as if it were supporting a 1.00 kg mass hanging vertically on the spring. The radius of the mass motion is 12.00 cm. This is the spring from Pre-Lab 10.

- (a) What is the magnitude of the centripetal force exerted by the spring?

$$F = \text{_____} \text{ N.}$$

- (b) If the frequency of rotation is 300 RPM what is the centripetal acceleration?

$$a_c = \text{_____} \text{ m/sec}^2$$