

Centripetal force analysis (25 pts)

Graph of  $F$  vs.  $v^2$  - 4pts

Axes labels and units - 1 pt

Slope with units - 2pts

9a. kg/m - 1 pt

9b. Stopper mass / radius - 1 pt

9c. Percent error - 1 pt

Graph of  $v^2$  vs. radius - 4 pts

Axes labels and units - 1 pt

Slope with units - 2 pts

11d.  $m/s^2$ , acceleration - 2 pts

11e. N / m - 1 pt

11f. Spring scale force / stopper mass - 1 pt

11g. Percent error - 1 pt

11h. The slope would double by  $F = ma$

11i. The stopper would depart at an angle of 90 degrees - 1 pt