Lab: Centripetal Force **Name___________________**

Data Table:

trial #	**mass of stopper, m**	**centripetal force, F_c**	**circle radius, r**	**total dist d=20(2πr) (m)**	**time, t (s)**	**velocity v=d/t (m/s)**	v^2
1	0.016 kg	1.0 N	0.50 m				
2	(same as trial #1)	(same as trial #1)	1.0 m				
3	(same as trial #1)	2.0 N	(same as trial #1)				
4	0.036 kg	(same as trial #1)	(same as trial #1)				

Lab Conclusions *(All conclusions are within bounds of experimental error.)*

1. In trials 1 and _____ , radius doubled, while mass and centripetal force remained constant. When the radius doubled, the velocity (increased, decreased), but did not double. However, v^2 ____________.
   Conclusion: Radius is _____________ proportional to (v, v^2).

2. In trials 1 and _____ , centripetal force doubled, while mass and radius remained constant. When the centripetal force doubled, the velocity (increased, decreased), but did not double. **Conclusion: Centripetal force is ____________ proportional to (v, v^2).**

3. In trials 1 and _____ , mass doubled, while radius and centripetal force remained constant. When the mass doubled, the velocity (increased, decreased), but was not cut in half. **Conclusion: Mass is _____________ proportional to (v, v^2).**

4. Centripetal forces are always directed toward the ***(center, outside)*** of a circle.

5. What furnishes the centripetal force needed to make your car turn in a curved path? __________________
   What happens to centripetal force on a wet or icy street? ___________________
   To keep the car on its circular path, you should
   ______________________________________.