Name-code: _____

2. A point particle with mass M is attached to one end of massless string with spring constant K. When unstretched, the length of the string is L. The other end of the spring is attached to a fixed point but the spring can rotate freely around this point. The particle and spring are constrained to move without friction on a two-dimensional, horizontal surface containing the fixed point.

   a) If the mass moves on a circular path with radius $r = 2L$, what is the period of the motion?

   b) If the circular motion with $r = 2L$ is now slightly perturbed in the radial direction, what is the frequency of small radial oscillations?