Extra Credit This problem will be graded as an extra prelim problem.

Problem 10. For the double pendulum shown below, take $m_1 = m_2 = 1$ kg, $\ell = 1$ m, $g = 10$ m/s^2. At $t = 0$, assume $\theta_1 = \pi/2$, $\dot\theta_1 = 0$ and $\theta_2 = \pi$, $\dot\theta_2 = 0$.

1. Plot the trajectory of point C (the motion of m_2) for 10s. (NOTE: The co-ordinate axis are shown on the figure). This should be a squiggly line on the x-y plane.

2. Show an animation of the double pendulum for 10s.

How to submit your answers

- All submissions by email to ruina@cornell.edu.

- Email subject should be ENGRD2030: Extra Credit

- Assume your name is Sue Smith. You should attach a single file: SueSmith203extra.zip.

- In that file should be just one folder called: SueSmith203Extra.

- In that folder should be any pdf (not word) documentation you like and any number of .m files. One of them should be called main.m. That one should run your demo, making the desired plot and animation. It should open two windows one showing the x-y trajectory of point C and second one showing the animation.

- You can include additional documentation in this folder like for eg a readme file, a pdf file of x-y trajectory if you like.

DEADLINE: Due on 1 May 2009 (Friday) by 11:59 PM. Late submission will not be graded.