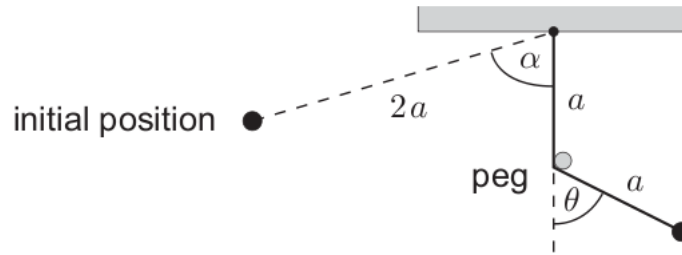


Nutcracker Physics Problem set 3

Physics A heavy ball is attached to a fixed point O by a light inextensible string of length $2a$. The ball is drawn back until the string makes an acute angle α with the downward vertical and is then released from rest. A thin peg is fixed a distance a vertically below O in the path of the string, as shown in Figure. In a game of skill, the contestant chooses the value of α and wins a prize if the ball strikes the peg. Show that the winning value of α is approximately 86°



Solutions should be mailed to bharathm@iitk.ac.in. If you have written it by hand, get it scanned. (scanning can be done in CC or hall 1 xerox shop) Don't forget to write your hall name and pool name along with your name.