

Week 61 (11/10/03)

Falling rope

- (a) A rope of length L lies in a straight line on a frictionless table, except for a very small piece at one end which hangs down through a hole in the table. This piece is released, and the rope slides down through the hole. What is the speed of the rope at the instant it loses contact with the table?

- (b) A rope of length L lies in a heap on a table, except for a very small piece at one end which hangs down through a hole in the table. This piece is released, and the rope unravels and slides down through the hole. What is the speed of the rope at the instant it loses contact with the table? (Assume that the rope is greased, so that it has no friction with itself.)