

PHYS UN1601 Recitation Week 8 Demonstration Problems

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Problem 1

A rope of length l and mass m lies at rest on a horizontal frictionless table. A length l_0 of the rope hangs through a hole in the table. Find an expression for the hanging length of rope, L , in terms of time, t , and l_0 .

Problem 2

A conical pendulum is formed by a mass m hanging from a rope of length l . The mass moves in a circle in the horizontal plane with angular frequency ω .

- Find α , the angle the rope makes with the vertical, in terms of m , l , and ω .
- Find the tension of the rope.

