

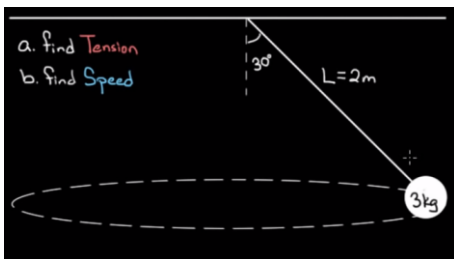
Circular Motion – Objects Swinging in a Horizontal Plane

Name: _____ Date: _____

Example:

Lesson - Tutorial

1. A 3 kg mass is hanging from a 2 m long rope attached to the ceiling. It is rotating at a speed that allows it to follow a horizontal plane at an angle of 30° to the vertical. a) Calculate the tension in the rope and b) the speed it is rotating at.



[Now try the question on the back of this page.]

Problem:

2. A rock of mass 4.0×10^2 g is tied to one end of a string that is 2.0 m in length. Holding the other end above his head, a boy swings the rock around in a circle whose plane is parallel to the ground.
- (a) If the string can withstand a maximum tension of 4.5 N before breaking, what angle to the vertical does the string reach just before breaking?
- (b) At what speed is the rock travelling just as the string breaks?
- (c) If the rock was being swung 1.87m above the ground when the string breaks, how far away on the ground does it land?