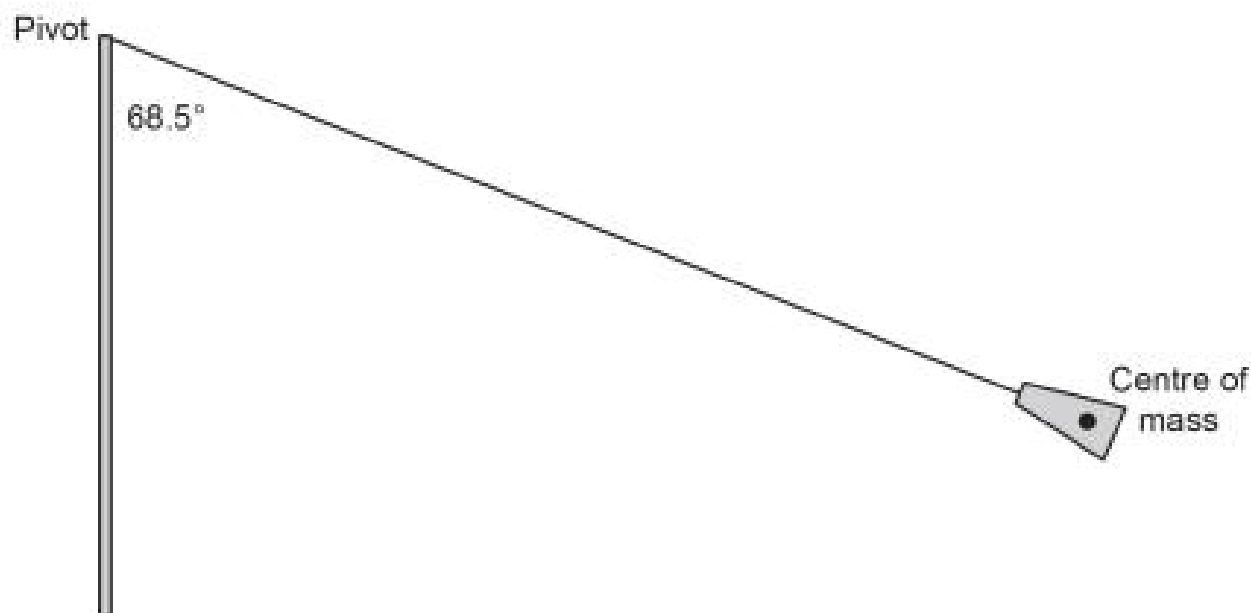


**Question 19****(8 marks)**

A student is conducting an experiment by tying a rubber stopper to a string and swinging it in a horizontal circle as shown in the diagram below. The stopper has a mass of 0.123 kg and the distance along the string from the pivot to the centre of mass of the stopper is 1.43 m.



- (a) On the diagram, draw and label the forces acting on the stopper. (2 marks)
- (b) Show that the tension in the string is 3.29 N. (2 marks)
- (c) Calculate the speed of the stopper. (4 marks)