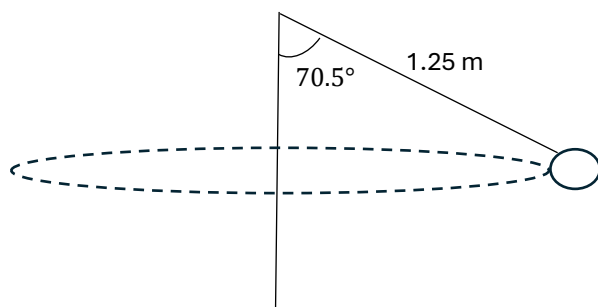


U3A1 Differentiator Questions: SAMPLE

A tennis ball is attached to the top of a pole by a 1.25 m piece of light string, as shown below. When James hits the ball, it moves in a horizontal circle. The mass of the ball is 85 g, and the string makes an angle of 70.5° with the pole. The effects of air resistance can be ignored.



- Calculate the period of rotation of the tennis ball. (3 marks)
- The ball now travels around the circle at a higher speed. James notices that the angle between the pole and the string increases, but is always less than 90° . Explain this observation. (3 marks)