

A-level physics summer assignment

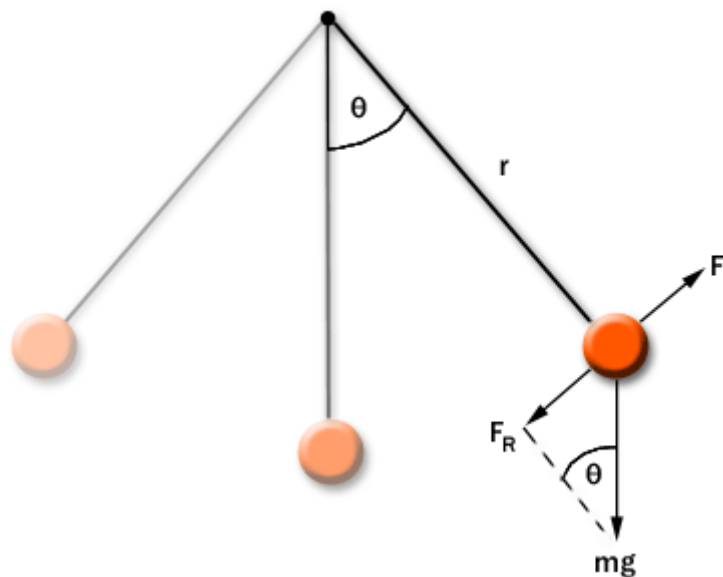
Below is a diagram of a pendulum. The image of the pendulum on the right shows it at the highest part of the swing in that direction. Here is some data about the pendulum:

The angle θ as shown in the diagram is 60° (it is the same in both cases)

The mass m of the pendulum bob is 5 kg

The weight of the pendulum bob is shown as mg on the diagram where m is the mass and g is the force of gravity given as 9.81 N/kg

The value of r is 0.5 m



Answer the following questions on lined paper and bring your answers to the first AS physics lesson.

1. Calculate the weight of the pendulum bob
2. The pendulum bob is released from the position shown on the diagram the force F_i shows the force from the person's hand holding the bob before releasing it. Calculate the size of the force F_R before the pendulum is released
3. Calculate how long the pendulum takes to complete one full oscillation
4. Describe what happens to the force F_R as the pendulum swings through one full oscillation from its starting position and back again
5. How is energy stored in the pendulum bob have before it is released? How will this change as it swings through one full oscillation and back to its original starting position?