Answer on Question # 50001 – Physics – Mechanics | Kinematics | Dynamics
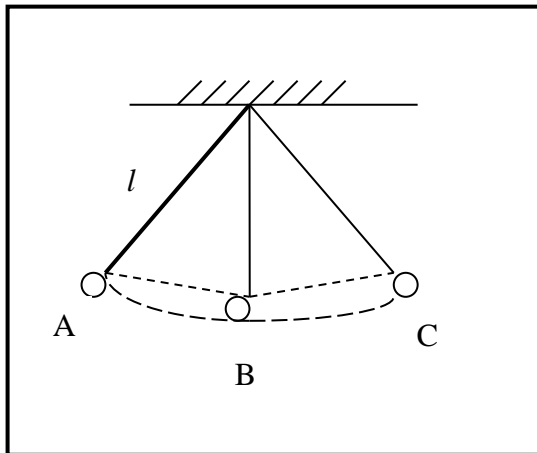
Given: Pendulum, the period $T = 2\pi\sqrt{\dfrac{l}{g}}$

Solution:

a) a pendulum consists of
1) weightless thread
2) load
also we need to have some stop-watch

b) $t_{AB} = 2\sqrt{\dfrac{l}{g}} \qquad \Rightarrow \qquad g = \dfrac{4l}{t_{AB}^2}$

where t_{AB} is a time of motion of the load from A to B.

c) at first we have to deviate the load to the maximum angle of deviation. Then we let go the thread and write down the time for one complete oscillation.

d) So the approximate solution
$$T = 4t_{AB} = 8\sqrt{\dfrac{l}{g}}$$
but the exact solution
$$T = 2\pi\sqrt{\dfrac{l}{g}}$$
Steps to minimize the errors of the experiment
1. to increase the amount of measuring
2. to change the angle of deviation