

The effect of angle and length to the period of the simple pendulum.

The simple pendulum experiment is a basic experiment in high school and first year university physics class. In the experiment, we always use small-angle approximation to approximate that the simple pendulum will become a simple harmonic motion. This research aims to measure angle and length of the simple pendulum which the small-angle approximation can still be used. The angles of pendulum are varied from 5 to 60 degree. The lengths of pendulum are varied at 0.25 m, 0.50 m, 0.75 m and 1.00 m. The periods of the pendulum (T) are measured by using application on a mobile phone, then compare with the periods calculating from the theory (T_0). We found that if T/T_0 is between 0.99-1.01, the length of pendulum should longer than 0.5 meter and the angle should less than 25 degree, and if T/T_0 is between 0.97-1.03, the length of pendulum can be any value but the angle should less than 35 degree.

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