Answer #339

The answer is (b): between (a) and (c). In fact, the period is very nearly 61.4 frames (2.047 seconds), as can be seen in an mpeg video by clicking your mouse on the photograph below.

The change in the period of the pendulum is in fact very nearly proportional to:

$$\frac{T}{T_0} \approx 1 + \frac{\theta^2}{16}$$

where θ is the angle in radians, T_0 is the period of the simple pendulum, and T is the period of the pendulum above. So if the correction for the 50° pendulum is 0.041 seconds, then the correction for the 30° pendulum should be about $(3/5)^2$ or 0.36 of this, about 0.015 seconds. From the video, the correction is exactly 0.014 seconds.

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