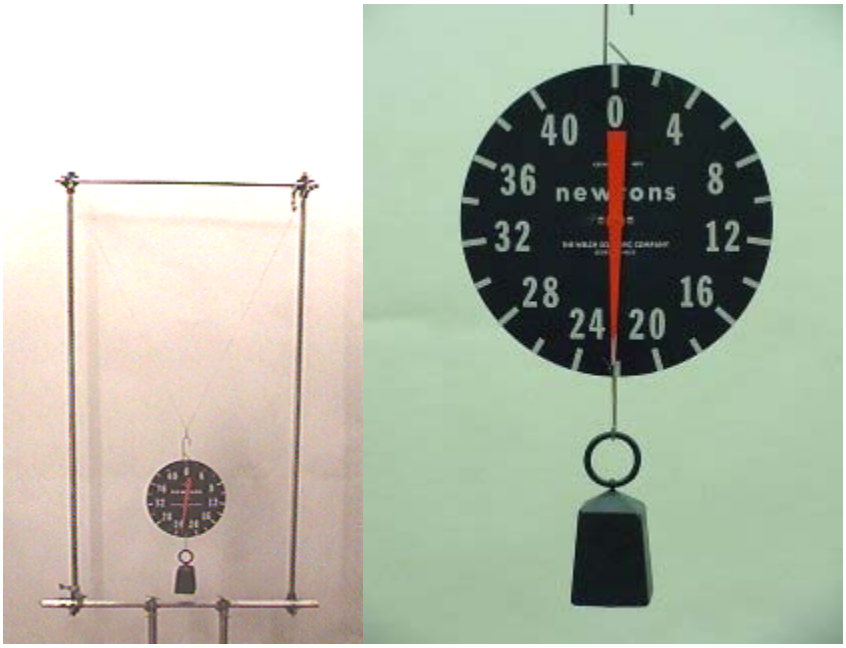
Question #200

Shown in the picture at the left below is a (bifilar) pendulum with a heavy mass as its bob, and a force meter that measures the force that the bob exerts on the string. The picture at the right is a close-up of the force scale and the bob, indicating that the weight of the bob (the force of gravity acting on the bob) is about 25 Newtons. (Note that the fact that this pendulum is bifilar is irrelevant to the problem, and only constrains the pendulum to remain moving in a consistent way through several periods.)

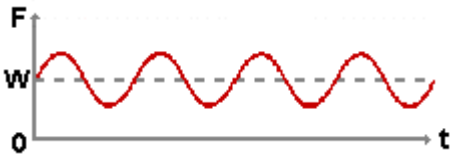


The graph below is a graph of the force exerted on the scale by the bob hanging at equilibrium, which is the weight of the bob.

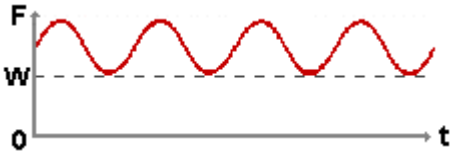
Now suppose that the pendulum is started in oscillation in the direction perpendicular to the photograph (in and out of the plane of your computer screen). What will be the reading of the scale as time goes by? We have six suggestions, labelled (a) through (f) below.

(a)

(b)

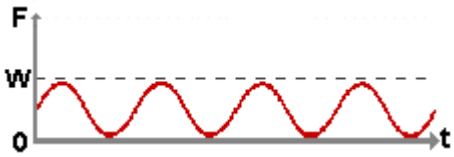


(d)



(e)

(c) 



(f)

When the pendulum is started in motion, the graph traced out by the force scale will be closest to:

- (a) graph (a).
- (b) graph (b).
- (c) graph (c).
- (d) graph (d).
- (e) graph (e).
- (f) graph (f).

Click here for Answer #200 after December 5, 2004.

Question of the Week

Outreach Index Page

Lecture-Demonstration Home Page

For questions and comments regarding the *Question of the Week* contact
Dr. Richard E. Berg by e-mail or using phone number or regular mail address
given on the Lecture-Demonstration Home Page.