Name: _____
Date: _____ Block: _____

Frequency, Period, and Pendulum Problems

1. Jerome and Claire are doing the Period of a Pendulum Lab. They observe that a pendulum makes exactly 10 complete back and forth cycles of motion in 21.8 seconds. Determine the period of the pendulum.

2. The spin rate of a CD-ROM varies according to the location on the disc from where data is being accessed. When accessing data from the inner circles of the disc, the CD can spin at a rate as high as 400 revolutions per minute. Determine the frequency (in Hertz) and the period (in seconds) of the spinning CD.

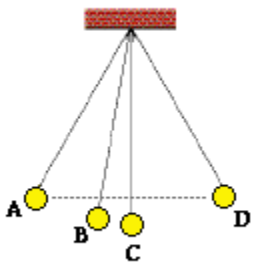
3. A future astronaut lands on a planet with an unknown value of *g*. She finds that the period of a pendulum 0.65 m long is 2.8 s. What is *g* for the surface of this planet?

4. Anna Litical wishes to make a simple pendulum that serves as a timing device. She plans to make it such that its period is 1.00 second. What length must the pendulum have?

5. Which would have the highest *frequency* of vibration?
   Pendulum A: A 200-g mass attached to a 1.0-m length string
   Pendulum B: A 400-g mass attached to a 0.5-m length string

6. A pair of trapeze performers at the circus is swinging from ropes attached to a large elevated platform. Suppose that the performers can be treated as a simple pendulum with a length of 16 m. Determine the period for one complete back and forth cycle.

7. Use energy conservation to fill in the blanks in the following diagram.



A: **KE=0J**
PE=24J

B: **KE=20J**
PE=_____J

C: **KE=_____J**
PE=0J

D: **KE=_____J**
PE=_____J

8. Which of the following mass-spring systems will have the highest *frequency* of vibration?
   Case A: A spring with a k=300 N/m and a mass of 200 g suspended from it.
   Case B: A spring with a k=400 N/m and a mass of 200 g suspended from it.

9. Which of the following mass-spring systems will have the highest *frequency* of vibration?
   Case A: A spring with a k=300 N/m and a mass of 200 g suspended from it.
   Case B: A spring with a k=300 N/m and a mass of 100 g suspended from it.