**Problem 1)**

The tip of a tuning fork goes through 400 complete vibration in 0.500 s. Find the angular frequency of the period of the motion.

**Problem 2)**

An object is undergoing SHM with period 0.90 s and amplitude 0.320 m. At t=0 the object is at x = 0.32 m and is instantaneously at rest. Calculate the time it takes the object to go
a)   from x = 0.32 m to x = 0.16 m, and
b)   from x = 0.16 m to x = 0

**Problem 3)**

A small block is attached to an ideal spring and is moving in SHM os a horizontal, frictionless surface. When the amplitude of the motion is 0.09 m, it takes the block 2.7 s to travel from x = 0.09 m to x = -0.09 m. If the amlitude is doubled, to 0.18 m, how long does it take the block to travel
a)   from x = 0.18 m to x = -0.18 m
b)   from x = 0.09 m to x = -0.09 m

**Problem 4)**

A harmonic ascillator has angular frequency $\omega$ and amplitude $A$ .
a)   What are the magnitudes of the displacement and velocity when the elastic potential energy is equal to the kinetic energy ? (Assume that U = 0 at equilibrium).
b)   How often does this occur in each cycle? What is the time betseen occurances?
c)   At an instant when the displacement is equal to $A$/2, what fraction of the total energy of the system is kinetic and what fraction is potential?

**Problem 5)**

The two pendulums shown each consist of a uniform solid ball of mass **M** supported by a rigid massless rod, but the pendulum **A** is very tiny whie the ball B is much larger. Find the period of each pendulum for small dispalcements. Which ball takes longer to complete a swing?