Physics 151 Class Exercise: Simple Harmonic Motion

1. A 1.4 kg mass is attached to a horizontal spring on the top of a table. The mass is pulled 12 cm from the equilibrium position and released. It then undergoes simple harmonic motion making 2.2 oscillations each second. Determine:
(a) the equation of motion

b) the spring constant

c) the total energy

d) the maximum acceleration of the mass (and indicate where this occurs)

e) the maximum velocity of the mass (and indicate where this occurs)

f) the acceleration of the mass when it is 7cm from the equilibrium position

g) the velocity of mass when it is 7cm from the equilibrium position