Task #1

A 250-gram mass oscillates according to the equation

$$x(t) = (0.8)\cos(34.56 \cdot t)\,,$$

where t is in seconds and x is in meters. Find (a) amplitude, (b) frequency, (c) period, (d) spring constant, and (e) maximum speed.

Task #2

The length of a simple pendulum is 0.72 m and the mass of its bob is 0.295 kg. It is released at an angle of 12° from vertical.

(a) Find the frequency.

(b) Find the pendulum bob's speed when it passes through equilibrium.

(c) Find the total energy stored in this oscillation.
