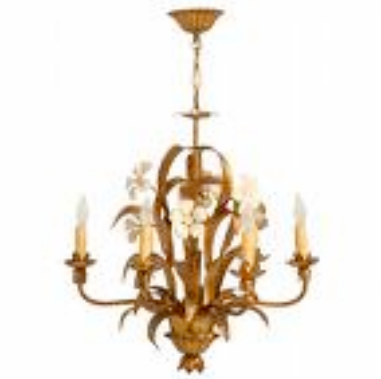
1. A horizontal spring of spring constant 12.0N/m is connected to 1.00kg mass that can oscillate on a smooth surface. The mass is in equilibrium until it is kicked such that it is given an initial velocity of 0.850m/s. Find (a)the angular frequency of the oscillations, (b)the amplitude of the oscillations, (c)the phase angle, and (d)the equation for the position of the mass as a function of time.

2. The vertical position of a fish bouncing at the bottom of a scale is given by,

$$x = 2.00\cos(8.00t + 1.56),$$

where x is in centimeters when t is in seconds. Find (a)the position of the fish at t = 1.50s, (b)the velocity of the fish at t = 1.50s, (c)the acceleration of the fish at t = 1.50s, and (d)the maximum speed of the fish.

3. A chandelier has a mass of 3.50kg and hangs 1.30m down from the ceiling. Find the period of oscillation it will have after an earthquake gets it started.



4. A simple pendulum has a period of 2.00s on Earth. Find the period it would have on Mars where the acceleration due to gravity is only 3.71m/s^2.