

A mass weighing 2 lb stretches a spring 6 inches. At time 0 the mass is released from a point 8 inches below the equilibrium position with upward velocity of $\frac{4}{3}$ ft/sec. Determine the function $x(t)$ which describes the subsequent free motion of the mass (ignoring any damping forces). Express $x(t)$ in the form $r \sin(\omega t + \theta)$. Plot x .