Mass-Spring Exercises

1. Suppose a 100 kg mass stretches a spring 2.45 m. The mass is released 5 m below equilibrium with an upward velocity of 4 m/s. Find the equation of motion.

2. Suppose a 64 lb weight stretches a spring 6.4 ft. The weight is subject to a damping force 4 times its velocity, and an external force $f(t) = 2\cos t$ (in lb) is applied to the system. Find the position of the weight if it is initially at rest and starts 2 ft above the equilibrium position.