(a) An 8-lb weight is attached to a spring suspended from the ceiling. When the weight comes to rest at equilibrium, the spring has been stretched 4 in. The damping constant is 40 lb-sec/ft. If the weight is released from equillibrium with an initial downward velocity of 2 ft/sec, determine the motion of the weight.

(b) What is the bahavior of the solution as $t \to \infty$?