Math 307 Worksheet: 3.7-3.8.

1. An object weighing 8 lb stretches a spring 32/5 ft in a medium which exerts a resistive force of 1/4 lb when the speed of the object is 6 in/s. Suppose the object is displaced an additional 1 ft and set into motion with an initial upward velocity of 3 ft/s. Determine the position of the object at any given time.

2. When does the object first return to equilibrium position? How long until it passes through the equilibrium 3 times?

3. How long does it take before the object stays within 1 in of equilibrium position?

4. Now assume that there is another force applied to the object of $0.5\sin(t)$, measured in pounds. Determine the position of the object at any given time. Describe the behavior of the function as $t \to \infty$ and compare this to the forcing function.