2.003 Spring 2003
Quiz 2: Sample Set1 Solutions

1. Mass Spring system with no damper.

$$X1 / F = \frac{10 s^2 + 1000}{12.5 s^4 + 11250 s^2}$$

$$V2 / F = \frac{1000}{12.5 s^3 + 11250 s}$$

Use MATLAB to verify Bode plots.

2. Transfer function from Bode plot
1) $\phi = -2\pi/3$

2) Transfer function $= \dfrac{1}{s(0.05 s + 1)}$

3) Input waveform is a step and a sine of frequency 1.5 kHz. The output is merely step response since the sine at 1.5kHz is attenuated as indicated by the Bode Plot.