7.1   Find y(x) for the equation

$$d^3y/dx^3 + 2d^2y/dx^2 - dy/dx - 2y = 0$$

if y(0)=1, y'(0)=-2, y''(0)=4.

7.2   (partially done in class) Solve $d^2x/dt^2 = -x$, x(0)=1, (dx/dt)(0) = 0, in two ways, one of which is the Energy method. In the latter method, note that t(x) is double-valued; thus, pick the appropriate signs of the square root.   Find x(t) for one complete period.

7.3   Find integral representations for y(x), x > 0, satisfying the ODE x y'' = y. Use the integral transform method.   Note that certain conditions must be satisfied at the endpoints of the contour. One way to do this is to make sure the integrand vanishes at the endpoints; another way might be to select a closed contour.