

**2.a)** (10 points) Convert the following 2nd order ODE to a system of first order ODEs. This requires that a new variable be introduced, call that variable,  $v$ .

$$\frac{d^2y}{dt^2} - 3\frac{dy}{dt} - 3 = 0.$$

**2.b)** (10 points) Use Euler's method on the first order system of ODEs found in part (a) to fill in the following table. The initial conditions are that  $t = 0, y = 0, v = 1$  and use a time step of  $\Delta t = h = 1$ .

t	y	v
0	0	1
1		
2		
3		