

[Submitting HW Tips](#)**HW #11**

**1** Write as a first order system of differential equations:

(a)  $y'' - 6y' + e^t y = \sin t$ , with  $y(0) = 2$ ,  $y'(0) = 3$

(b) 
$$\begin{cases} y^{(3)} = x + 4y' + e^t y + 1 \\ x + y' = x'' + 2xy \end{cases}$$

**2** **Section 7.4:** #1(c)(d)(e).

**3** **Section 7.5:** #1(b)(c), 5(b)(c), 10.

**4** **Section 7.6:** #3(a)(b), 5, 7.

**5** Compute  $e^{At}$  and  $e^{2A}$  for the matrix  $A = \begin{pmatrix} 3 & -2 \\ 2 & -2 \end{pmatrix}$ .

**6** **Section 7.8:** #1(c), 5.

**7** **Section 7.9:** #5.