

1. Consider the second-order differential equation

$$3\frac{d^2y}{dt^2} + 6\frac{dy}{dt} + 9y = 0.$$

Convert the equation to a first-order system.

2. Compute the general solution of the linear system

$$\frac{d\mathbf{Y}}{dt} = \begin{pmatrix} -2 & -2 \\ -2 & 1 \end{pmatrix} \mathbf{Y}.$$

3. Guess two linearly independent nonzero solutions for the differential equation

$$2\frac{d^2y}{dt^2} + 7\frac{dy}{dt} + 3y = 0.$$

4. Sec. 2.1 #2 (p. 160)
5. Sec. 2.1 #20
6. Sec. 2.2 #12-16
7. Sec. 2.2 # 23-26
8. Sec. 2.4 #2 (a, b)
9. Sec. 3.1 #7
10. Sec. 3.1 #9
11. Sec. 3.1 #27
12. Sec. 3.2 #3 (a, b)
13. Sec. 3.2 #11(a)
14. Sec. 3.3 #19