

Show your work! Answers without supporting work will not be given credit. Print this assignment and write your work in the spaces provided.

1. Solve

$$\begin{aligned}y'' + 2y' + 2y &= \delta(t - \pi) \\ y(0) &= 1 \\ y'(0) &= 0\end{aligned}$$

2. Express  $y''' + 2y'' + 7y' + 3y = \sin(4t)$  as a system of equations.

3. Express  $y''' + 2y'' + 3y = \cos(4t)$  as a system of first order equations.