MATH 246 Groupwork 3.1

Name: _____

1. Show that the pair $x_1(t) = e^{2t}$ and $x_2(t) = 3e^{2t}$ form a solution to the initial value problem:

$$x_1' = -x_1 + x_2 x_2' = 3x_1 + x_2$$

with $x_1(0) = 1$ and $x_2(0) = 3$.

2. Rewrite $y'' + 2ty' - 5y = e^t$ with y(0) = -1 and y'(0) = 2 as a first-order system with an initial value.



3. Write down the system of differential equations corresponding to the following two tanks.