

Name : _____

242 - Differential Equations: Test 5 Extra Credit

DIRECTIONS: Show all work! There is a total of 5 points which will be added to Test 5.

1. (5 points) [pg. 570 #45] Two tanks, each holding 50 L of liquid, are interconnected by pipes with liquid flowing from tank A into tank B at a rate of 4 L/min and from tank B into tank A at 1 L/min. Pure water flows into tank A at a rate of 3 L/min and the solution flows out of tank B at 3 L/min. Initially, tank A contained 2.5 kg of salt, and tank B contained pure water. Determine the mass of salt in each tank at time t . Graph the two solutions $x_1(t)$ and $x_2(t)$ which show the salt content in tanks A and B respectively.

See pg. 570 for a picture of the situation.