

**Math 207 Quiz #9**  
**June 1, 2011**

Name: \_\_\_\_\_

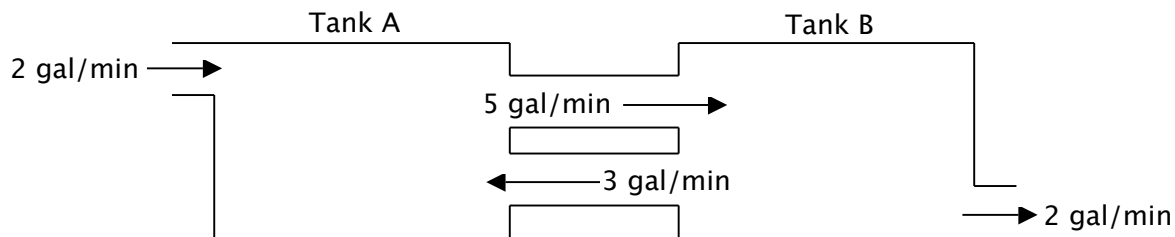
Show all work and answers on a separate sheet. Put a box around your final answer.

1. (6 pts.) Find a general solution to the following system where differentiation is with respect to  $t$ . You can use substitution or elimination whenever appropriate.

$$\begin{cases} x' - 3x + 2y = 1 \\ y' + 7y = 8x + 5t \end{cases}$$

2. (4 pts.) Two large tanks, each holding 50 gallons of salt water, are interconnected by pipes. Fresh water flows into tank A. (See the figure below for the rates of flow.) Tank A begins with 10 pounds of salt. Tank B begins with 5 pounds of salt.

**Set-up, but do not solve** a system of differential equations for the amount of salt in each tank. Include initial conditions for each tank.



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