Here are some problems like 17-20, page 99. Each of them can be divided up into two initial-value problems. In your solution, make sure that the dear reader can easily pick up these initial-value problems. Like, maybe box them off in a display.

1. Show steps in solving the initial-value problem:

\[ y'(t) + 3y(t) = E(t) \quad \text{with} \quad y(0) = -4, \]

where

\[ E(t) = \begin{cases} 
6 & \text{if } 0 \leq t \leq 3 \\
0 & \text{if } t > 3 
\end{cases} \]

Give the value of your solution for \( t = 2 \) and also for \( t = 4 \).

2. A 2000-gallon tank contains 400 gallons of a solution containing 100 lbs of salt. Solution containing 5 lbs of salt in each gallon starts running into the tank at 4 gal/min. While this is going on, large paddles stir up the solution in the tank, and solution is pumped out at 2 gal/min.

After 104 minutes, the incoming solution is switched to pure water (coming in at the same rate). How much salt is in the tank 256 minutes after the start of this process?