(SM) 4. Consider an input–output model with three sectors. Sector 1 is heavy industry, sector 2 is light industry, and sector 3 is agriculture. Suppose that the input requirements are given by the following table:

	Heavy industry	Light industry	Agriculture
Units of heavy industry goods	$a_{11} = 0.1$	$a_{12} = 0.2$	$a_{13} = 0.1$
Units of light industry goods	$a_{21} = 0.3$	$a_{22} = 0.2$	$a_{23} = 0.2$
Units of agri-cultural goods	$a_{31} = 0.2$	$a_{32} = 0.2$	$a_{33} = 0.1$

Suppose the final demands for the three goods are 85, 95, and 20 units, respectively. If $x_1, x_2,$ and x_3 denote the number of units that have to be produced in the three sectors, write down the Leontief system for the problem. Verify that $x_1 = 150$, $x_2 = 200$, and $x_3 = 100$ is a solution.

Review Problem for ch 16

6. For what values of t does the system of equations

$$-2x + 4y - tz = t - 4$$
$$-3x + y + tz = 3 - 4t$$
$$(t-2)x - 7y + 4z = 23$$

have a unique solution for the three variables x, y & z? Use Cramer's rule.