Example 0.1 A product is made by blending some materials ($M_1, \ldots, M_5$). There are 3 machines (A, B, and C) that are used in order to make the materials suitable for the blending. Every material must be handled by all the 3 machines before it can be used for the blend. The following table reports the minutes needed for 1000 kg of any material on any machine, and the minutes available for any machine.

	M1	M2	M3	M4	M5	minutes available
A	200	150	120	100	200	11000
B	180	160	110	100	220	12200
C	230	150	120	90	230	14000

Let us assume that there is no loss of weight after the work of the machines, and after the blending. The weight of the final product must be exactly 85000 kg.

The blend must satisfy the following constraints:

- M_1, M_3, and M_5 contain the 4% of copper, while M_2 and M_4 do not contain copper. The blend must contain at least the 2.5% of copper.
- The blend must be made for at least the 20% of M_1.

The cost per 1000 kg of all the materials is the following: M_1 22 \$, M_2 23 \$, M_3 21 \$, M_4 22 \$, M_5 19 \$. Minimize the cost of the blend.

Example 0.2 Solve again the problem in the case in which every material must be handled by **only one** of the 3 machines before it can be used for the blend.