1. The manufacturing time and profit of two products is given:

	3D Printer	KnitBot	Crew	Profit
Bottle	26 min	60 min	20 min	\$10
OSARP	62 min	30 min	40 min	\$12
Available	5 hours	4 hours	4 hours	

The crew threatens to leave if the time on the first two machines is more than three times the time spent by the crew. What is the most profitable course of action?

Variables:

Constraints:

Objective:

2. A Food-and-Nutrition-Science student was asked to design a diet for someone with iron and vitamin B deficiencies. The student said the person should get at least 2400mg of iron, 2100mg of vitamin B_1, and 1500mg of vitamin B_2 (over 90 days). The student recommended two brands of vitamins:

	Brand A	Brand B	Min. Req
Iron	40mg	10mg	2400mg
B_1	10mg	15mg	2100mg
B_2	5mg	15mg	1500mg
Cost:	\$0.06	\$0.08	

What is the cheapest mix of brands that provides the vitamins?

Variables:

Constraints:

Objective:

3. You've got two manufacturing plants and two assembly plants. The production capacities (supply) of the manufacturing plants, the demand from the assembly plants, and the cost to ship between them are given below:

		To assembly plant A1	To assembly plant A2	Production Capacity
From	P1	\$100 per engine	\$60 per engine	100 engines
	P2	\$120 per engine	\$70 per engine	110 engines
Demand		80 engines	70 engines	

How many engines should each manufacturing plant ship to each assembly plant to meet the assembly plants' production goals at the minimum shipping cost?

Variables:

Constraints:

Objective:

4. You've got two plants P1 and P2 and three warehouses W1, W2, W3. The production capacity of the plants, the demand from the warehouses, and the shipping costs between them are given below.

	W1	W2	W3	Capacity
P1	\$20	\$8	\$10	400 items
P2	\$12	\$22	\$18	600 items
Demand	200 items	300 items	400 items	

How much should each plant ship to each warehouse to meet the demand without exceeding the capacity at the minimum cost?

Variables:

Constraints:

Objective: