



## Question D: Medical Supplies Distribution.

The distribution of medical materials is a typical optimization problem. Based on the pharmaceutical logistics order data of Shanxi Sinopharm Group, the following experiments are carried out. In order to simplify, only 15 distribution medical customer units are considered. Among them, Datong Sinopharm Group Branch is the material distribution company. Station, which is the starting point. It is assumed that the company has only one delivery vehicle. See the attachment for the latitude, longitude and material requirements of each location.

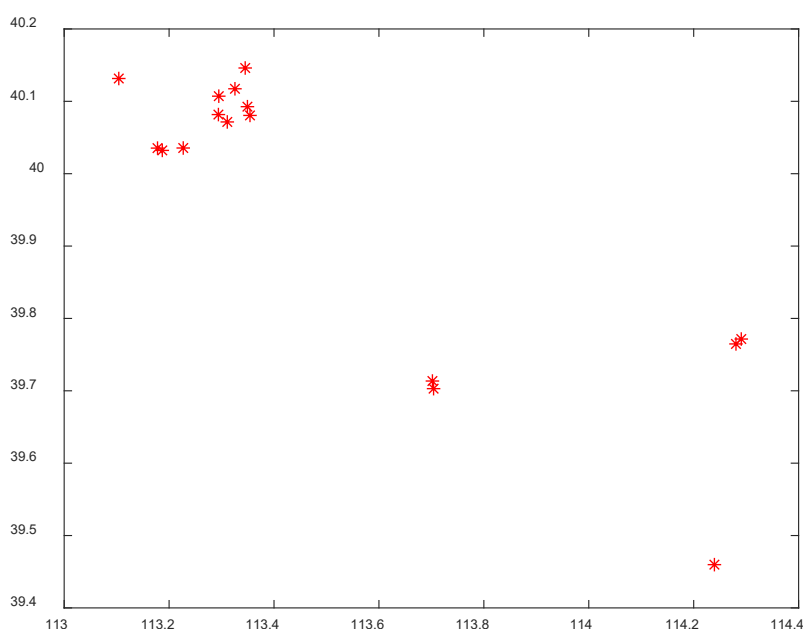


Figure 1: .

Now consider the following questions:

**Question 1:** If there is only one transport vehicle that can carry 800kg of materials, please give a transport plan for the transport vehicle so that the transport vehicle can traverse all locations and the cost is minimal.

**Question 2:** If you can use two transport vehicles that can carry 600kg of materials, please give a transport plan for the transport vehicles so that the transport vehicles can traverse all locations and the cost is minimal.

**Question 3:** If the company wants to choose another location to build a material distribution warehouse, the company and the warehouse each have 400kg of materials, and two distribution vehicles of the same model are set up in the company and the warehouse. How to choose the best location, and in the corresponding selection The optimal delivery scheme of two delivery vehicles is given under the condition of the address.

**Question 4:** Write your findings as a letter of recommendation of no more than two A4 pages and submit it to the company.