Business analysis:

A market research firm’s three clients each requested that the firm conduct a sample survey. Four available statisticians can be assigned to these three projects; however, all four statisticians are busy, and therefore each can handle only one client. The following data show the number of hours required for each statistician to complete each job; the differences in time are based on experience and ability of the statisticians.

Client

Statistician A B C

1 150 210 270

2 170 230 220

3 180 230 225

4 160 240 230

1. Formulate and solve a linear programming model for this problem
2. Suppose that the time statistician 4 needs to complete the job for client A is increased from 160 to 165 hours. What effect will this change have on the solution?
3. Suppose that the time statistician 4 needs to complete job for client A is decreased to 140 hours. What effect will this change have on the solution?
4. Suppose that the time statistician 3 needs to complete the job for client B is increased to 250 hours. What effect will this change have on the solution?