

## Colorado Springs Simulation Lab

You are a manager for Jones Bros. Trucking located in Penrose, Colorado and have won a contract to truck bulk cement from Holcim in Penrose, Co to a large cement (redi-mix) plant in Monument, CO just north of Colorado Springs (COS).



Your boss has directed you analyze the trucking time for loaded trucks from Penrose to the Monument redi-mix plant. You know the following information: The trip consists of 2 Parts:

Part A - driving from Penrose to COS is **triangularly distributed** (symmetrically) from 45 to 78 minutes.

Part B - driving through COS to Monument is **normally distributed** with a mean of 55 minutes and an SD of 19.5 minutes. (minimum time through COS = 35 minutes)

You decide the best way to analyze this data is to SIMULATE the entire driving time from Penrose to Monument using MS Excel and your knowledge of simulation.

Provide your boss the following information in a quality word processed document with ALL necessary supporting documentation:

The histogram of the one-way driving times from Penrose to Monument (use bins of 5 minutes).

The PDF (probability density function [equation] associated with the histogram determined in (1) above. This will require regression analysis.

The descriptive statistics of one-way simulated trips

The one-way probabilities for the following:

- a trip will take less than 70 minutes
- a trip will take between 65 and 85 minutes
- a trip will take more than 95 minutes

5. Identify and explain the role CONVARIANCE might play between Part A and Part B of the trip. Calculate the covariance between Part A and Part B for your simulation times. Explain what covariance your data showed compared to what you expected to find.

**Submit your report as an e-mail attachment to: mheinen\_1@msn.com**

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