Lab Activity: Simulation of the Monty Hall Problem

Statement of the Problem

The **Monty Hall problem** involves a classical game show situation and is named after Monty Hall, the long-time host of the TV game show *Let's Make a Deal*. There are three doors labeled 1, 2, and 3. A car is behind one of the doors, while goats are behind the other two:

The rules are as follows:

1. The player selects a door.
2. The host selects a different door and opens it.
3. The host gives the player the option of switching from her original choice to the remaining closed door.
4. The door finally selected by the player is opened and she either wins or loses.

Suppose you're on a game show, and you're given a choice of three doors. Behind one door is a car; behind the others, goats. You pick a door--say No. 1--and the host, who knows what's behind the doors, opens another door--say No. 3--which has a goat. He then says to you, 'Do you want to pick door No. 2?' Is it to your advantage to switch your choice?

Go to a website developed by Kyle Siegrist at the University of Alabama in Huntsville for a mathematical treatment of the problem.

Go to: www.math.uah.edu/stat/

Click on 13. Games of Chance

Click on 6. The Monty Hall Problem.

Read the lesson, and turn in your answers to questions 1, 2, 3, 12, 13

(For 12 & 13, give the final values for W, Distribution, and Data.)

Note that there is the Monty Hall "game" and the Monty Hall "experiment" that reports the probability distribution for the results.