1. The best way to approach the monte hall problem is to change the door from the initially chosen one since the change create a 2/3 of the chance rather than 1/3 of the chance.

Mean = (0 + 1 + 5 + 2) / 4 = 2

Variance =

(0-2)^2 = 4

(1-2)^2 = 1

(5-2)^2 = 9

(2-2)^2 = 0

(4+1+9+0)/(4-1) = 4.666…

Standard Deviation = sqrt(variance)

Sqrt(4.66666..) = 2.16024689947