3. Every Monday a local radio station gives coupons away to 50 people who correctly answer a question about a news fact from the previous day’s newspaper. The coupons given away are numbered from 1 to 50, with the first person receiving coupon 1, the second person receiving coupon 2, and so on, until all 50 coupons are given away. On the following Saturday, the radio station randomly draws numbers from 1 to 50 and awards cash prizes to the holders of the coupons with these numbers. Numbers continue to be drawn without replacement until the total amount awarded first equals or exceeds $300. If selected, coupons 1 through 5 each have a cash value of $200, coupons 6 through 20 each have a cash value of $100, and coupons 21 through 50 each have a cash value of $50.

(a) Explain how you would conduct a simulation using the random number table provided below to estimate the distribution of the number of prize winners each week.

(b) Perform your simulation 3 times. (That is, run 3 trials of your simulation.) Start at the leftmost digit in the first row of the table and move across. Make your procedure clear so that someone can follow what you did. You must do this by marking directly on or above the table. Report the number of winners in each of your 3 trials.

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72749  13347  65030  26128  49067  02904  49953  74674  94617  13317
81638  36566  42709  33717  59943  12027  46547  61303  46699  76423
38449  46438  91579  01907  72146  05764  22400  94490  49833  09258
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THE MONTY HALL PROBLEM*

You are on a game show on television. On this game show, the idea is to win a car as a prize. The game show host shows you three doors. He says there is a car behind one of the doors and there are goats behind the other two doors. He asks you to pick a door. You pick a door but the door is not opened. Then the game show host opens one of the doors you didn't pick to show a goat. Then he says that you have one final chance to change your mind before the doors are opened and you get a car or a goat. So he asks if you want to change your mind and pick the other unopened door instead. What should you do?

(After deciding what you should do, see if you are correct by reading the article at: http://math.ucsd.edu/~crypto/Monty/montybg.html)

*Reprinted without permission from the book The Curious Incident of the Dog in the Night-time by Mark Haddon