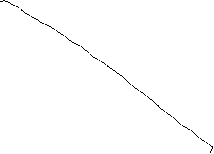
PROGRAMMIN CHALLENGE

QUESTION 1

In the popular game Tic Tac Toe (or other known as( “X" and “O" ) The end goal is to get three consecutive “X" or “O" horizontally ,vertically or diagonally. As shown below.



You have been tasked with coding a game that always “win or draws” a modified version of Tic Tac Toe. In this modified version you play the “X" and you always start with your “X" on the center square as shown below.



The cell /square are represented by an arrays also shown below.

(1,2 3 4,5,6,7,8,9).



Therefore this modified game should always start with the array

(\_,\_,\_,\_, X,\_,\_,\_,\_)

(Since “X" starts at the center, cell 5)

INPUT:



At every point, The playing user “X" or “O" enters any numbers of the available cells (1,2,…..9) until either the game ends in a tie or “X" wins – An example flow of this is given below:

A: Game begins with “X" at the center-> (\_,\_,\_,\_,X, \_,\_,\_,\_ ,)

B: “O"'s turn to play at the top left ->Player 1(cell 1)



C: “X" plays at the top right ->player enters 3 ( cell 3)

(O,\_,\_,\_,X,\_,\_,\_,X)



D: “O" plays at the left to block -> player enters 7 (cell 7)



E: “X" foolishly plays on the bottom right cell ->player enters 9 (cell 9)

(O,\_,X,O,X,\_,O,\_,X)



PS: Remember your objective is never to allow “O" win.

ANSWER

“X" the first player plays at the center ->Player enters 5 (cell 5)

(\_,\_,\_,\_,X,\_,\_,\_,\_,)



“O" plays at the top right-> player enters 3 (cell 3) (\_,\_,O,\_,X,\_,\_,\_)



“X" plays at the bottom center ->player enters 8 (cell 8) (\_,\_,O,\_,X,\_,\_,X,\_)



“O” then plays at the top center to block -> players enter 2 (cell2)

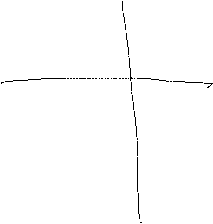
(\_,O,O,\_,X,\_,\_,X,\_)



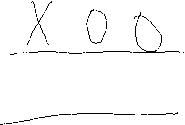
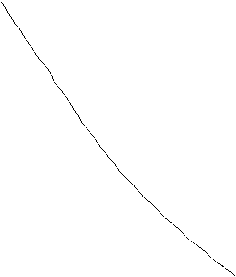
“X" plays at top left to block->player enters 1(cell 1) (X,O,O,\_,X,\_,\_,X,\_)



**“O" foolishly plays at the center right player enters 6 (cell 6)not seeing “X" victory approaching (X,O,O,\_,X,O,\_,X,\_)**



**“X" plays at bottom right ->player enters 9 (cell 9) (X,O,O,\_,X,O,\_,X,X) and finally wins the game**



Our objective is never to allow “O" win the game “X" finally won.

QUESTION 2

The numbers 1,1/2,1/3,1/4………1/2021 is written on a black board, Tomiwa chooses any two numbers erases them and she writes instead the number x+y+xy . She continues to do this until only one number is left on the board . What are the possible values of the final number?

ANSWER

x+y+xy

SOLUTION

Collect like terms

x×x+y×y =x²+y²

The possible value of the final number is = x²+y²

QUESTION 3

There are seven cards in a hat, and on the cards K is a number 2k- ¹, k= 1,2,…7.Alephile picks the cards up at random from the hat ,one card at a time, until the sum of the numbers on cards in his hand exceed 124.

What is the most probable sum he can get?

ANSWER

Cards in hat=1/7

Probable sum he can get =1/7×124 =268

:.The most probable sum he can get is = 268/