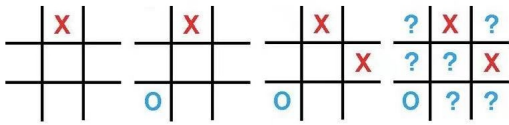


You're playing tic tac toe with an opponent who is X while you are O .

The initial gameplay is as shown below:

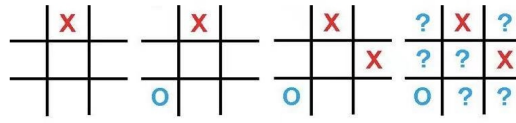


Assuming that your opponent will play optimally from now on, where must you place your next mark in order to obtain a winning position?

- Upper-right corner
- Either upper-left corner or lower-right corner
- Either left side or lower side
- Middle tile

You're playing tic tac toe with an opponent who is X while you are O .

The initial gameplay is as shown below:

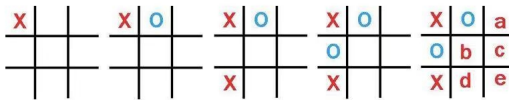


Assuming that your opponent will play optimally from now on, where must you place your next mark in order to obtain a winning position?

- Upper-right corner
- Either upper-left corner or lower-right corner
- Either left side or lower side
- Middle tile

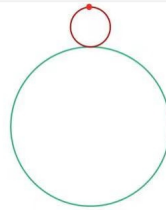
Assume that you are playing a **tic-tac-toe** game with an opponent. You play as X while your opponent plays as O .

The game is played as follows:



Find all the possible grid tiles where you can put an X -mark that will help you guarantee a win under best play.

- a
- b
- c
- d
- e



The radius of the smaller circle is $\frac{1}{4}$ the radius of the larger circle. The smaller circle rolls around the larger circle for one trip, back to its starting point, without any slipping.

How many times would the red dot on the smaller circle rotate around the center of the smaller circle?

- 5.0
- 4.5
- 4.0
- 5.5
- 3.5