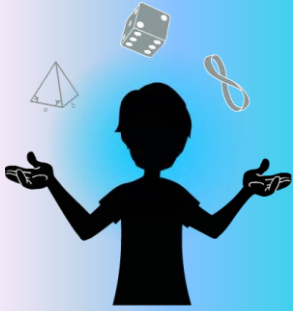


Puzzle

- The Bike Route -



AMAZINGMATHS

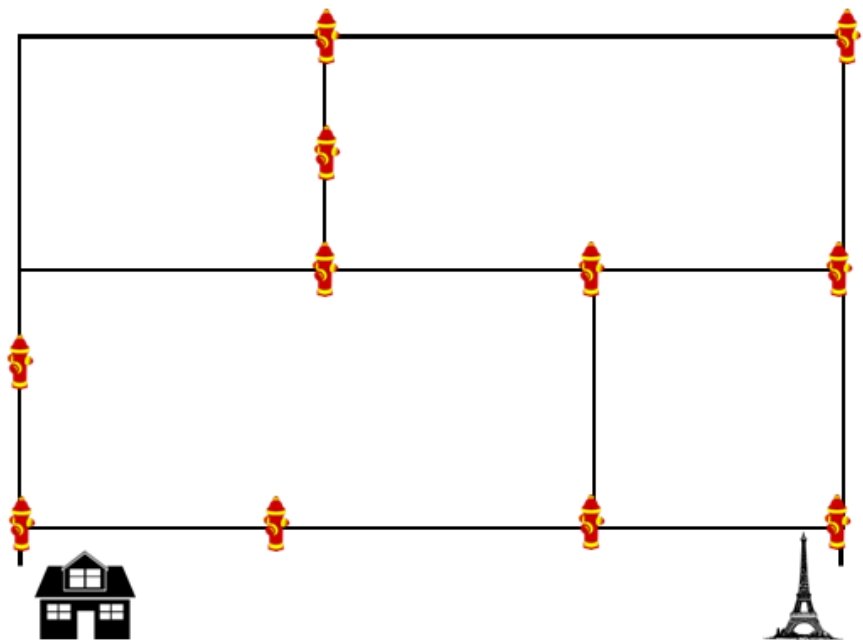
Materials:

- Video of the puzzle
- Pen and paper

The Puzzle

Our Parisian friend Pauline was walking from her house to the Eiffel Tower.

Here is Pauline's neighbourhood:



As soon as she left her house, she ran into her cousin who proposed a challenge. His challenge was:

“Try to get to the Eiffel Tower by passing an odd number of fire hydrants, and by passing each one only once. Also, you cannot go back or take the same route twice!”

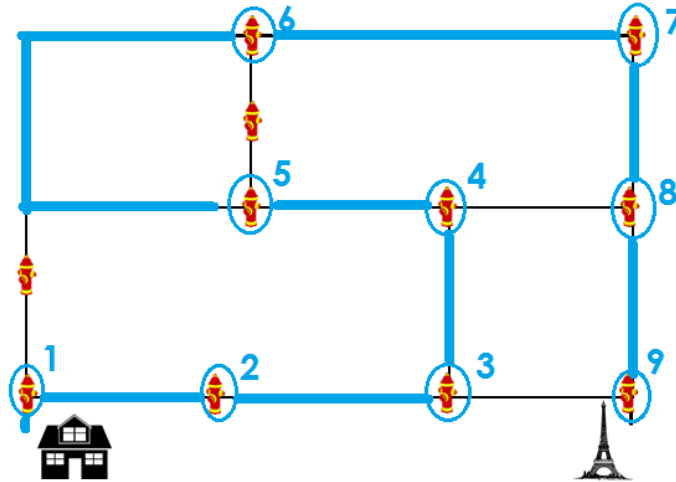
Which route should Pauline take to successfully complete her cousin's challenge?



Puzzle Solution



The answer:

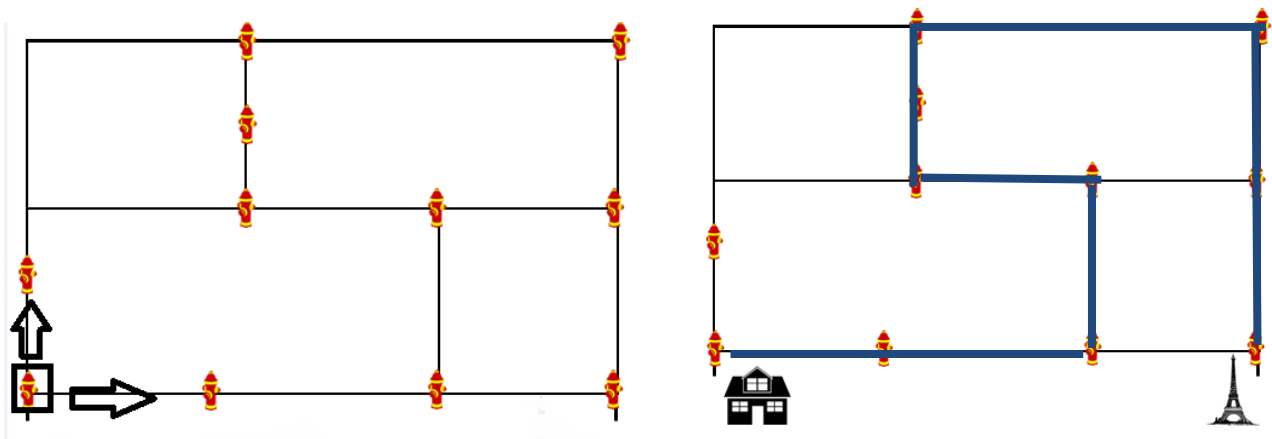


Possible solution:

Even though there are many ways to solve this puzzle, trial and error being one of them, the goal is to solve this puzzle by using logic and mathematical reasoning.

We start by noticing that there are 11 fire hydrants in total. The puzzle requires us to pass by an **odd number of fire hydrants**. Since there are 11 fire hydrants, we can check to see if it is possible for Pauline to pass every fire hydrant in order to get to the Eiffel Tower.

The answer to this is no, because at the first intersection we must make a choice of between which fire hydrant to pass by.



So, if we wish to eliminate as few fire hydrants as possible, there is only one possibility that eliminates a single fire hydrant. We therefore subtract that one fire hydrant from the total amount, and there are now 10 fire hydrants left.



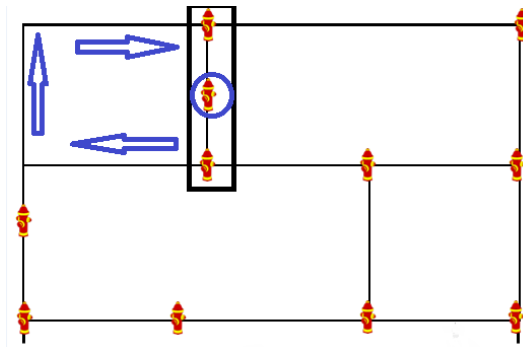
Puzzle Solution (Continued)



Possible solution (continued):

Since the challenge requires Pauline to pass in front of an odd number of fire hydrants, we must eliminate at least one other fire hydrant from her path.

A specific route allows us to pass by 3 fire hydrants. However, one of them can be bypassed, allowing Pauline to continue on her route.



We have now eliminated 2 fire hydrants.

Since 2 of the 11 fire hydrants have been eliminated, we are back to an odd number of fire hydrants (**9**), and we have passed each one only once. Furthermore, we have done this **without retracing our steps!**

