

UW Math Circle
October 9, 2014

Professor Snape is now ready to give you his hardest test! You meet him in a hallway with 9 closet doors, and he gives you the following information:

1. Harry Potter is behind only one door.
2. For the other 8 rooms, each one either contains Voldemort or is empty.
3. The sign on the Harry Potter's room is true.
4. If Voldemort is behind the door, the sign on the door is false.
5. If no one is behind the door, the sign can be either true or false.

After you've been working on the puzzle for a while, Professor Snape realizes he forgot to give you an important piece of information! "If I tell you what's behind door number 8, you'll be able to find Harry Potter."

I Harry Potter is in an odd-numbered room.	II This room is empty.	III Either sign V is right or sign VII is wrong.
IV Sign I is wrong.	V Either sign II or sign IV is right.	VI Sign III is wrong.
VII Harry Potter is not in room I.	VIII Voldemort is in this room and room IX is empty.	IX Voldemort is in this room and sign VI is wrong.

Where is Harry Potter?