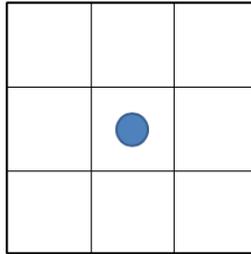


# Mathletes Problem of the Week #17

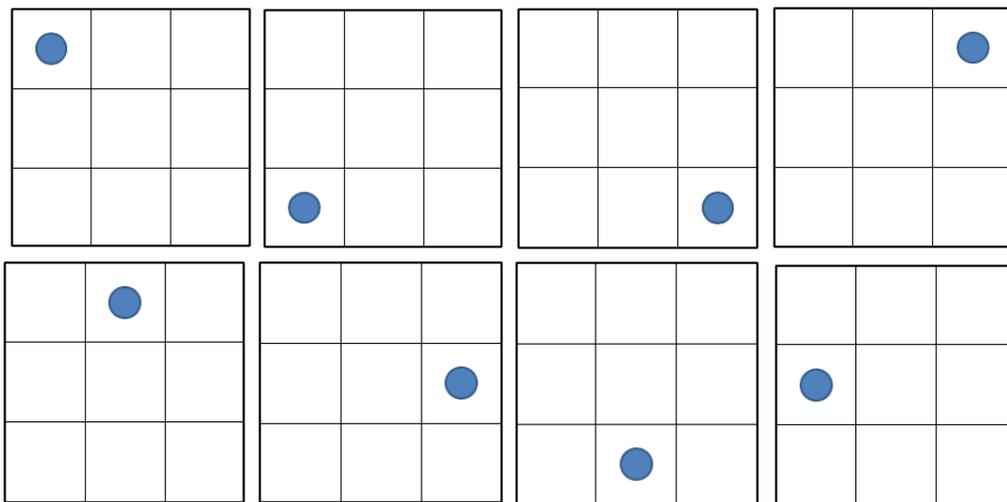
## Get Out



A house is laid out in the shape of a 3 by 3 rectangle. Each square is a room. There is a door between any two adjacent rooms and all rooms on the outer edge have a door to the outside. Your challenge is to get out of the house, but you have to go through every other room first. You can't skip any rooms and you can't go back to any room twice. Can you escape?

- If you start in the room in the middle, can you get out of the house? What if you started in a corner room? What if you started in a room on the edge? There are boxes below for you to try to escape. Which rooms can you get out of and which ones leave you stuck?
- Now, imagine a larger 4 by 4 house that has 16 rooms. Which rooms can you escape from and which rooms leave you stuck? Use the boxes on the back to explore these!
- Try extending this to a 5 by 5 house that has 25 rooms. Which rooms can you escape from now? Can you predict what will happen in a 6 by 6 house? A 7 by 7 house? An 8 by 8 house?
- What if you didn't want to escape, but wanted to search the house and come back to the room you started in. Is that possible in any of the houses you've explored so far? Can you make a loop, going through every room exactly once and ending up back in the room you started in?

**Solutions & Explanations:** (Try one or try them all! Record your answers below, on the back or a separate sheet of paper.)



Name \_\_\_\_\_ Class \_\_\_\_\_

**(First and last name, please!)**

**Solutions due: April 24<sup>th</sup>**

