the nmf weekly

Ask your math friend, James

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Math and Rooms

G'Day!

This is your math friend James. Today I am answering a question from Amelia.

CAN YOU DO SOMETHING WITH MATH AND ROOMS?

This might seem like a strange question, but it was actually part of a more general conversation about a puzzle I was describing I once made up about a room in my childhood home. (That will be the topic of another newsletter.)

Being asked about rooms, in general, is interesting! I wonder what my brain will come up with in response?

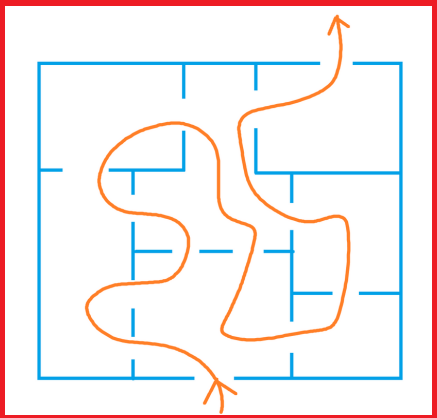
How about this?

puzzle #1

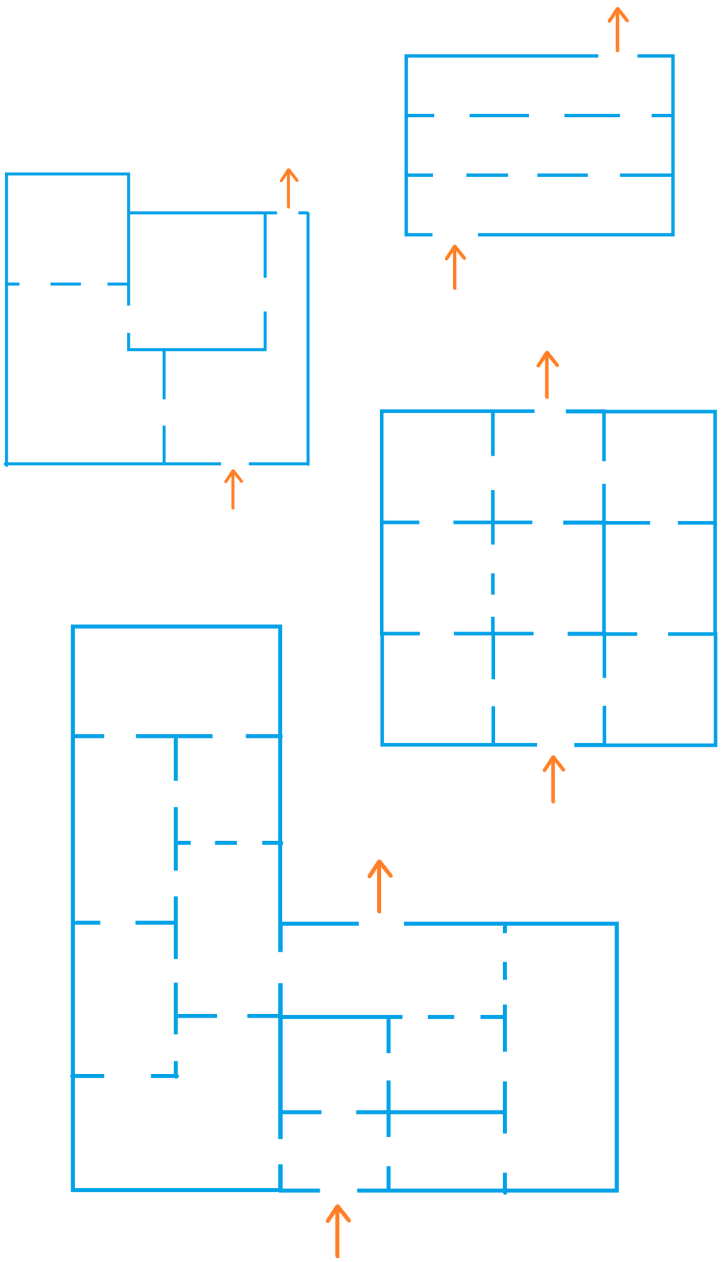
One the right I have some floorplans of houses. Each room has at least two doors.

Is it possible to go in the front door and walk through each-and-every interior door exactly once, and exit through the back door?

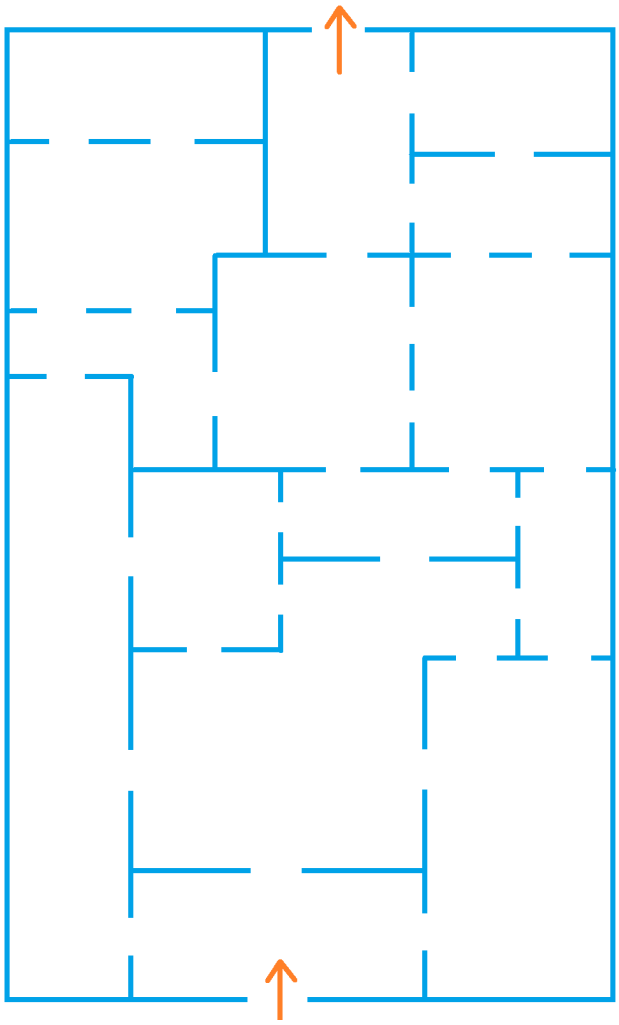
Here's an example for which it is possible.



What about the other examples?



Okay ... try this one!

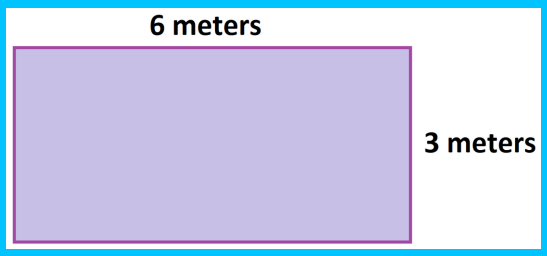


Check out MATHICAL for award-winning math books for middle-schoolers and teens, the YouTube channel NUMBERPHILE for math videos galore, and MORE MATH! for even more resources. Wowza!

Here's a Numberphile video about a very famous math problem that might help with the thinking behind my floorplan puzzles!

puzzle #2

Rooms are usually rectangular. I think having a rectangular room that is 3 meters wide and 6 meters long would be quite neat.



Why? Because the area of that room would be 3 x 6 = 18 meters squared, and the perimeter of that room would be 6 + 3+ 6 + 3 = 18 meters. We get the same number 18!

Is there another rectangular room that has the property that its area and its perimeter have the same numerical value?

Do you have a math question for me to answer, or try to answer?

Write to me at the website. Each week I'll pick a new question and give my thoughts on it!

About the Author: Dr. James Tanton

The NMF Weekly is written by mathematician Dr. James Tanton as a resource for friends and fans of the 2021 National Math Festival.

Learn more at globalmathproject.org/nmf-weekly & nationalmathfestival.org