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Questions

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Puzzling

1 vs. 3 hide and seek challenge

Asked 6 days ago   Modified 5 days ago   Viewed 1k times

14

There are four people playing hide and seek in a 1 vs. 3 format. Three of them are hiders, and the fourth is the seeker trying to find the hiders.

The game starts by the hiders choosing which zones to hide in. Each zone may be occupied by one, two, or all three hiders. Once a hider selects a zone, they must remain in that zone for the rest of the game until they are found. Then, once the hiders are hiding in their zones, it's the seeker's turn. The zones each have a door which the seeker must open to release the hider(s) in that zone out of their hiding place. The seeker must find and release all hiders by opening up to **five** doors. If the seeker successfully opens the doors to all three hiders within five chances, they win the game; however, if any hider is still in their hiding place without their door having been opened after the seeker has opened five doors, then the seeker loses and the team of hiders wins (even if one or two of the hiders were found).

1. In the first round, there are six hiding zones. The door to and walls of each hiding zone are completely opaque. What is the most optimal strategy for the hiders to win the game, and what are the chances that the hider or seekers will win the game, respectively?

2. In the second round, there are the same six hiding zones with completely opaque doors, but there is also a seventh hiding zone with a transparent door (meaning that the seeker can see if someone's behind it and who without opening it). This fact is known to all four players at the beginning. Does the hiders' strategy change at all, and do the chances change?

mathematics   probability

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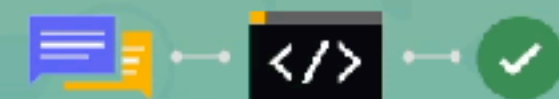
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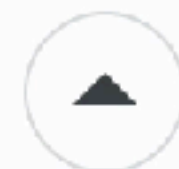# Puzzling

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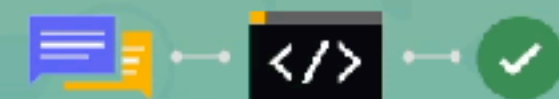
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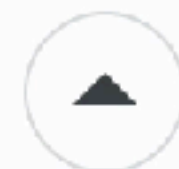
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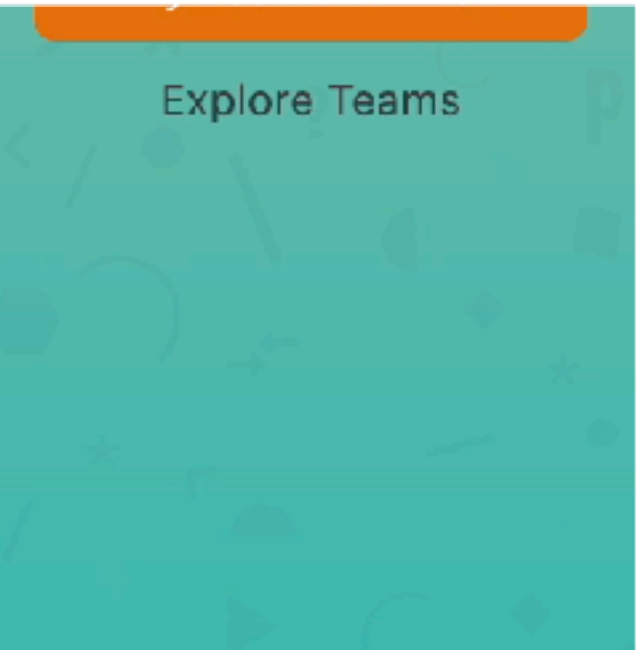
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1 This came from my friend's statistics exam. I guess the teacher must be a Wii fan... – gparyani Nov 11 at 18:32

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