

# DILBERT'S HOTEL

Dilbert, the manager of a large Hotel, aimed to become rich and make his hotel as famous as Hilbert's Hotel.

## Advertisement

Everyone arriving in a bus with at least 10 passengers will receive their week's holiday, including food and drinks, for free if every passenger on that same bus succeeds in Dilbert's simple game, in which everyone has a 50% chance of winning.<sup>1</sup>

Dilbert worked out that the probability that a bus would win was less than  $\frac{1}{2^{10}}$ . But even though the advertisement attracted busloads of tourists, after a few years Dilbert went broke. Why?

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<sup>1</sup>However, if just one passenger on the bus fails, everyone on the bus has to pay for their stay.

# DILBERT'S GAME

## The Set Up



- ▶ Bus with  $n$  passengers arrives;
- ▶ Dilbert tells every passenger their unique room number from 1 to  $n$ ;
- ▶ Dilbert places the keys with numbers from 1 to  $n$  in boxes numbered 1 to  $n$ , one key in one box;
- ▶ The passengers can devise a strategy until the game begins, after that, they may no longer talk to each other.
- ▶ Each passenger plays the game by him or herself.
- ▶ If one passenger fails, the game is lost for every passenger on that bus.

# DILBERT'S GAME

## The Rules

- ▶ One passenger at a time enters a room with the  $n$  little boxes.
- ▶ He or she can open at most half of the boxes.
- ▶ If a passenger finds his/her room key in one of these boxes the game is won.
- ▶ If the passenger fails to find his/her room key among these boxes, the game is lost for every passenger on the bus.