

## TROUBLE INVESTIGATION

- Estimated the average move length last time
- How does the average move length depend on the roll-again value?

Note: There is variability in the computed averages?

- Question 3: Simulate a head-to-head game

```
def game():
    # simulate moves for both players
    → moveA =           ()
    → moveB =           ()
    # as long as there is a tie, do it again
    while moveA == moveB:
        moveA =           ()
        moveB =           ()
    print(moveA, moveB)
    # return the winner
```

numbers  
(lengths of moves)

## SIMPLE RANDOM WALK

1. Will it eventually draw the whole grid?
2. What is the distribution of points over many simulations?
3. It's possible to fill the grid without going off.
4. What is the average length of a walk?
5. What if we add diagonal movements?
6. What if we don't allow backtracking or revisiting points?
7. What if we don't allow it to exit the boundary?
8. On average, how far from the starting point after  $n$  steps?
9. On average, how many little squares after  $n$  steps?
10. How often will it complete a square in 4 moves?

11. Will it return to the starting point?

## 1D RANDOM WALK

