Sherlock and John raced out of Angelo's in pursuit of a suspect cab. As they turned into one street they were both on their left foot, but John was managing only four steps to Sherlock's five. When – if they kept up this pace like clockwork – would their right feet both strike the ground at the same time?

Struggling to get started?

- This is not a question about distance covered. Think about it in terms of cycles: A cycle for John is LRLR whilst a cycle for Sherlock is LRLRL. The first step they both take being L. What would the second cycle for each man look like?
- Musical rhythms may help. If you tap out John's rhythm correctly using Lefts and Rights whilst someone else does Sherlock's – ensuring you do 4 taps and they do 5 but always starting a cycle together – what do you notice? Make a note of how each new cycle starts.
- Can you record their footfalls as a time line? Musical notation? What is happening at the beginning of each cycle? Record these outcomes and look for patterns.
- Is there a numerical pattern or some algebra to represent what is happening? Odds and evens may help you here.

Extension:

Does Sherlock's left foot ever hit the pavement at the same time as John's right foot?