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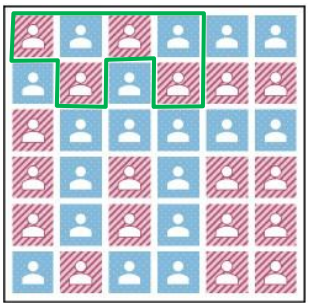
Masterclass network

Maths of Voting Masterclass Worksheet 1 – Can You Gerrymander?

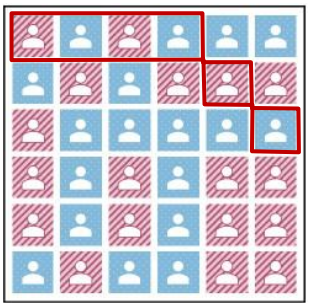
The maps below represent a geographical area and the location of **Blue (spots)** and **Magenta (stripes)** supporters within it, with each square representing a voter.

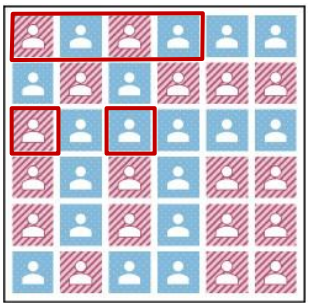
Can you divide each map into 6 continuous constituencies with 6 squares each so that the **Magenta** party has the majority in the most constituencies and wins overall?

Below are examples depicting a **continuous** constituency, versus two constituencies that are not continuous.

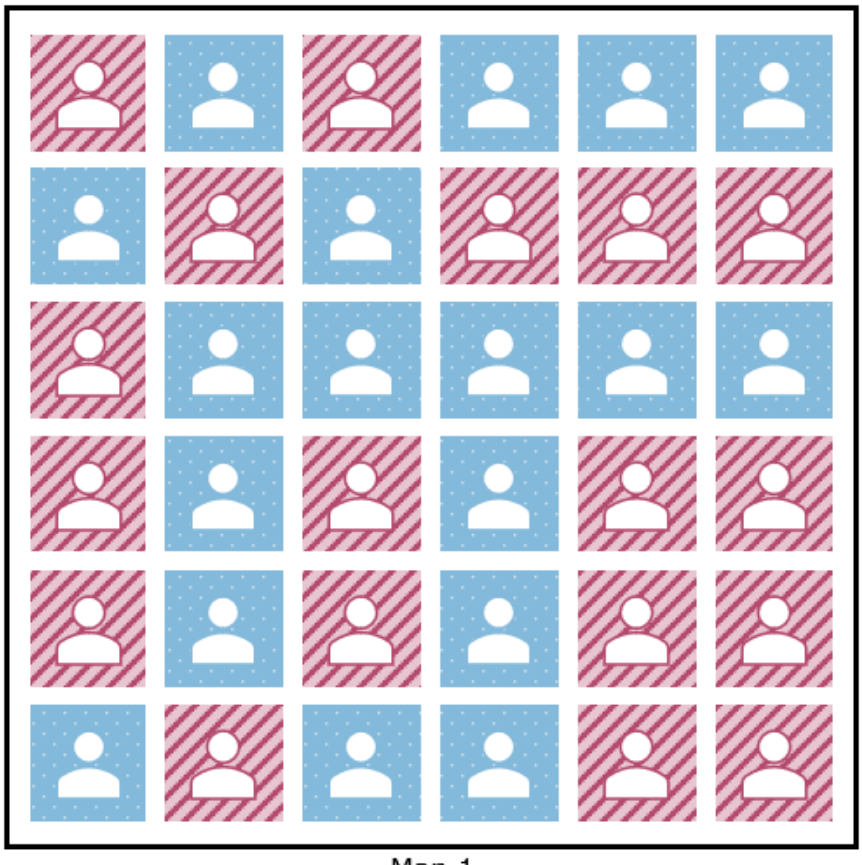


One continuous border

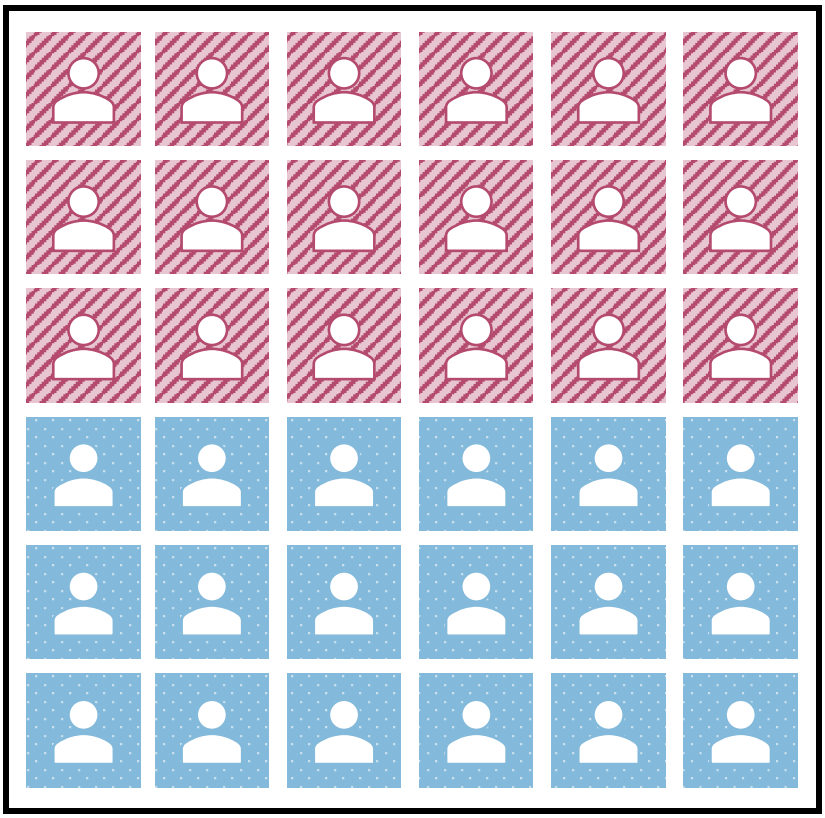




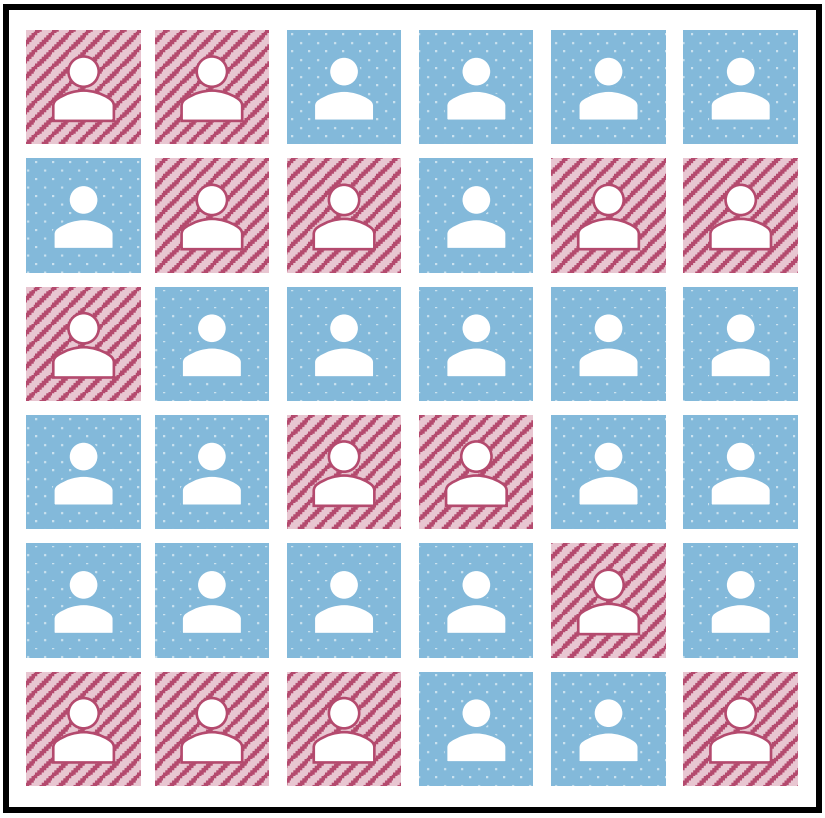
Connecting via diagonals or having separate islands is not continuous



Map 1



Map 2



Map 3

Extension question

Imagine you're an election campaign manager hoping to turn Blue voters into Magenta voters. Looking at the map below, what is the minimum number of voters that would need to be turned from Blue voters to Magenta voters, for Magenta to win overall?