### The 4 colour theorem

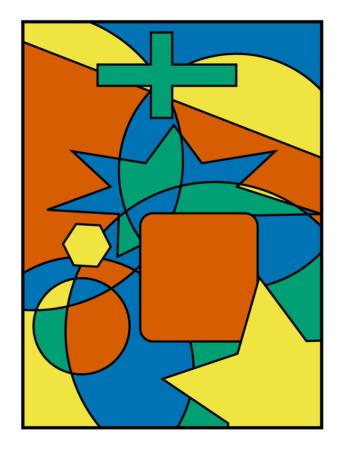


Image by Inductiveload - Based on a this raster image by chas zzz brown on en.wikipedia., CC BY-SA 3.0, https://commons.wikimedia.org/w/index.php?curid=1680050

#### The 4 colour theorem

- "You only need 4 felt-tips to colour in a map"
- Proposed 1852
- Proved 1976, then correctly 1989
- 400 pages of proof
- 1,834 individual cases checked by computer

# That's too easy!

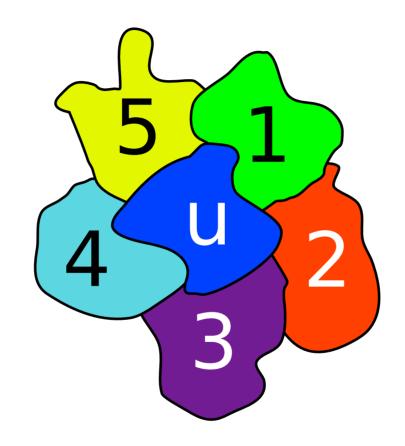
### The 5 colour theorem

"You only need 5 felt-tips to colour in a map"

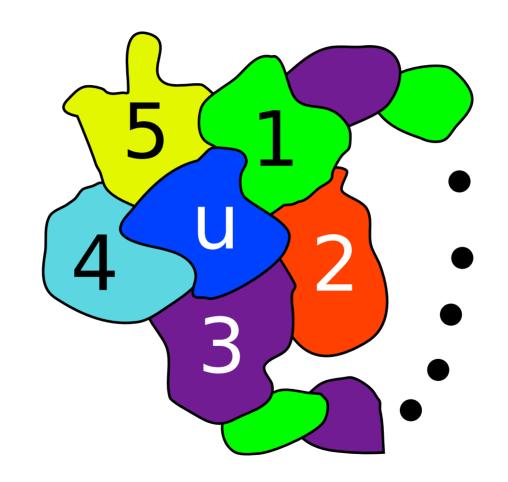
### The 5 colour theorem

- The proof fits on one page
- Proof by induction, trust me
- One case left to consider...

## Imagine it's impossible

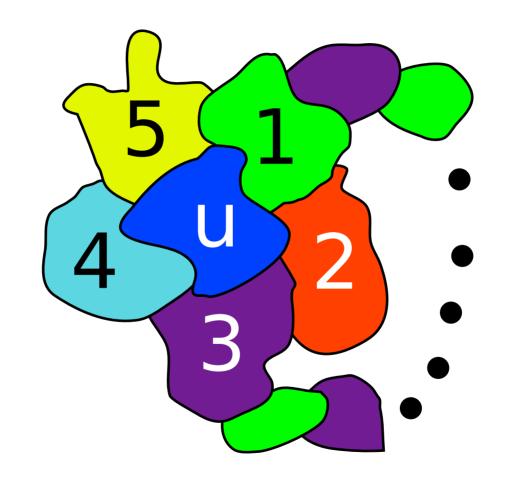


#### Why are 1 & 3 different colours?

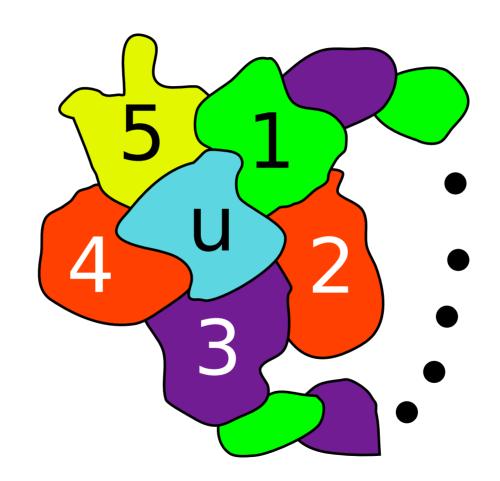


Ideas from https://slaystudy.com/5-color-theorem/

#### But then why are 2 & 4 different colours?



Fix it



Ideas from https://slaystudy.com/5-color-theorem/

## Q.E.D.

(Details left as an exercise for the reader)