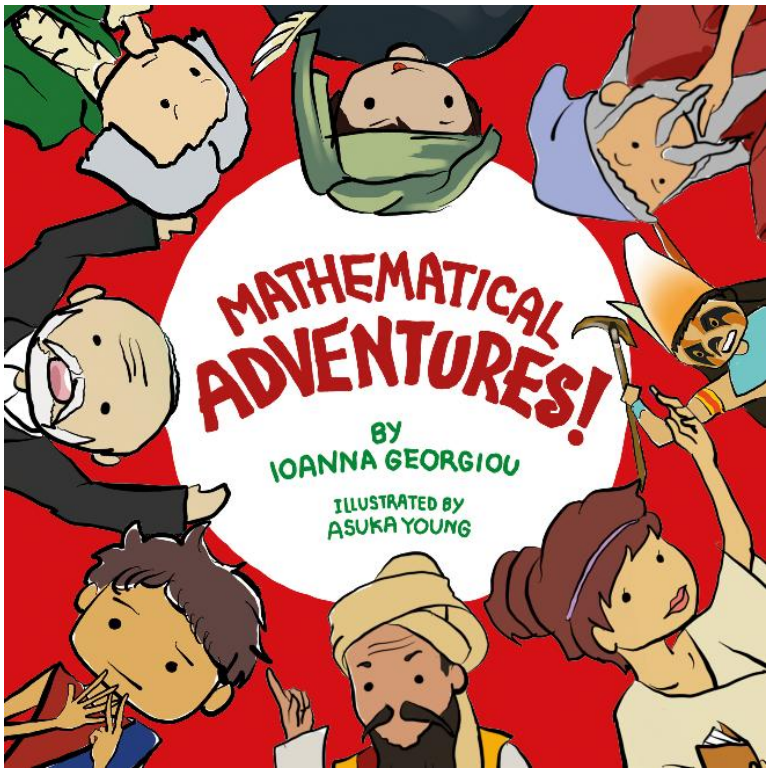
Maths and Maps Workshop

With Ioanna Georgiou

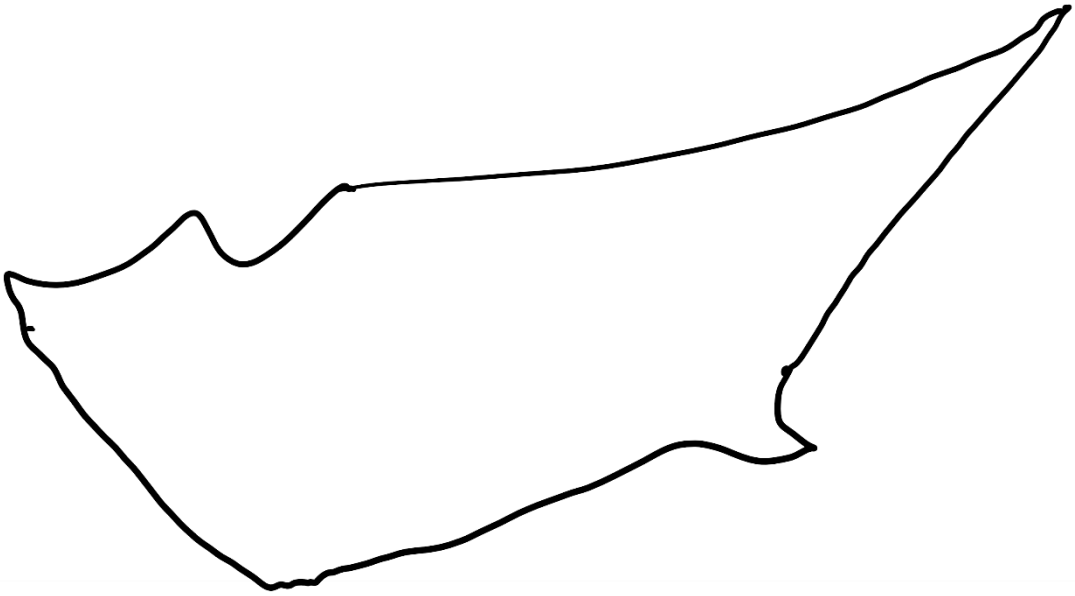


How many colours do you need to colour a map?

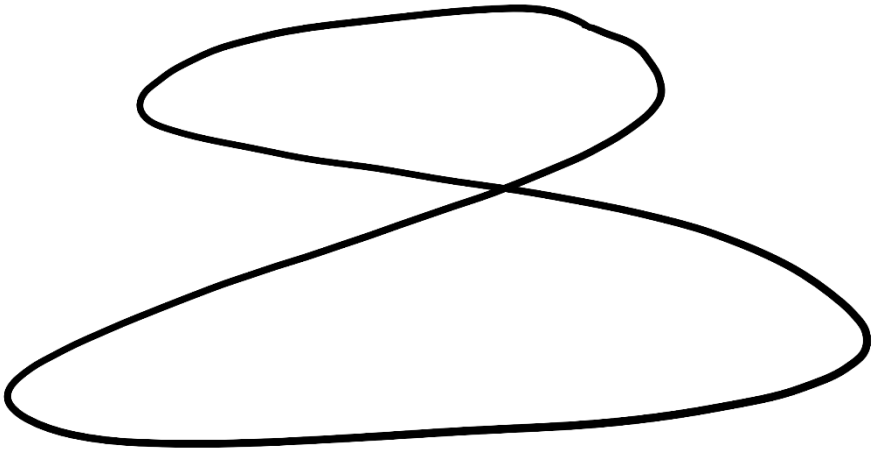
Try these with **as few colours as possible**. The rules are: you cannot colour two bordering areas with the same colour. Just like in a real map you need to be able to tell the countries apart!

When the picture is more complicated, I give you lots of copies of the same one, so you can try again if it does not work the first-time round. You do not need to colour all of them once you get it right.

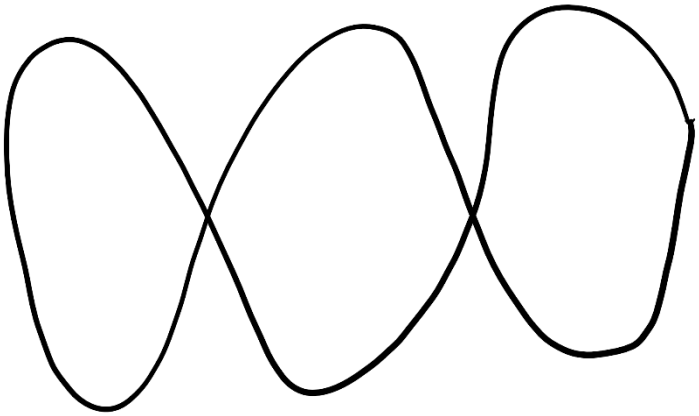
How many colours do you need for this? Colour it in!



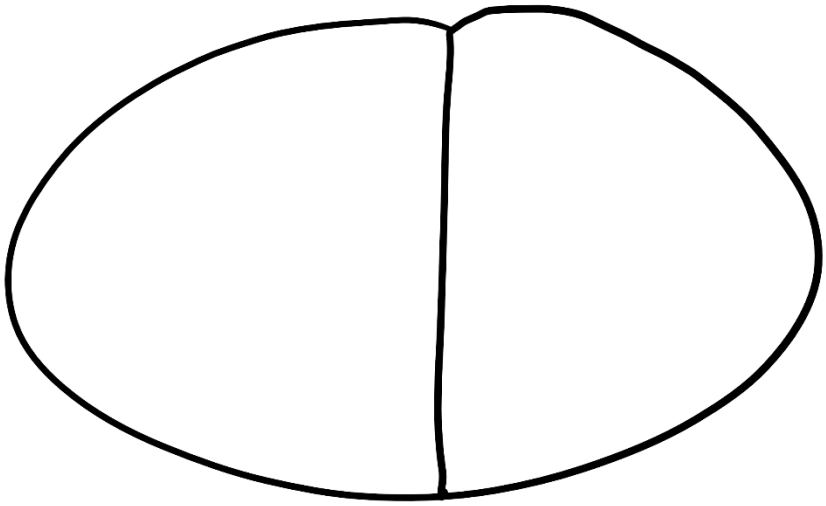
How many colours do you need for this? Colour it in!



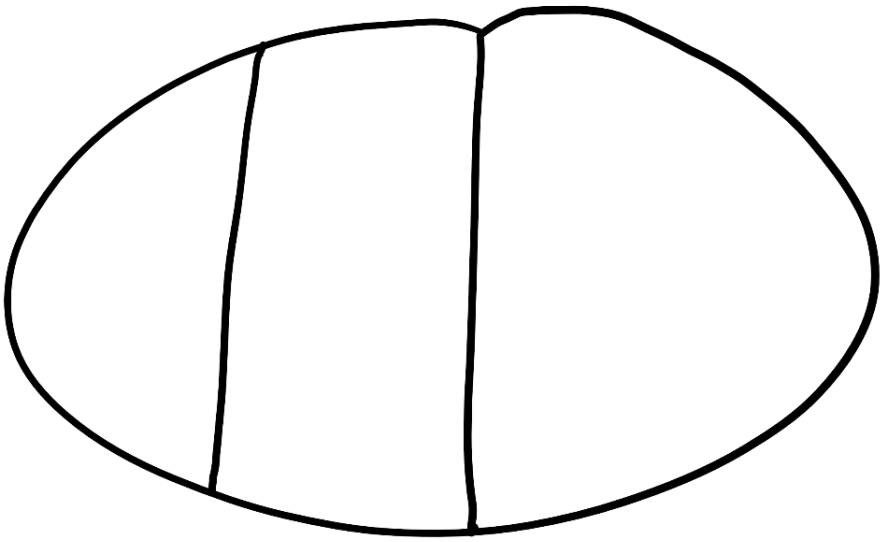
How many colours do you need for this? Colour it in!



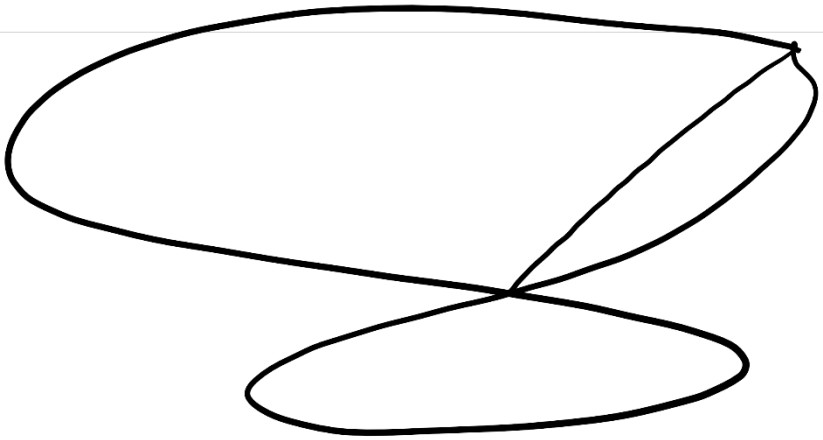
How many colours do you need for this? Colour it in!



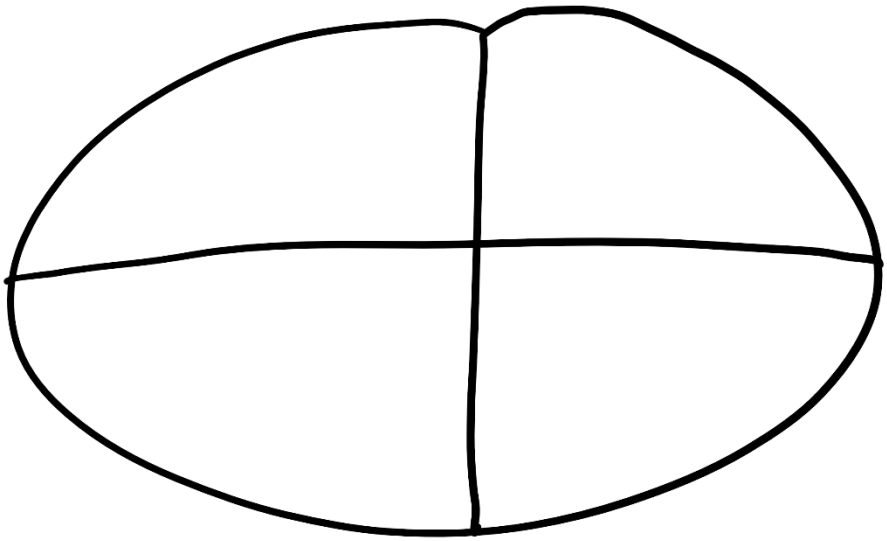
How many colours do you need for this? Colour it in!

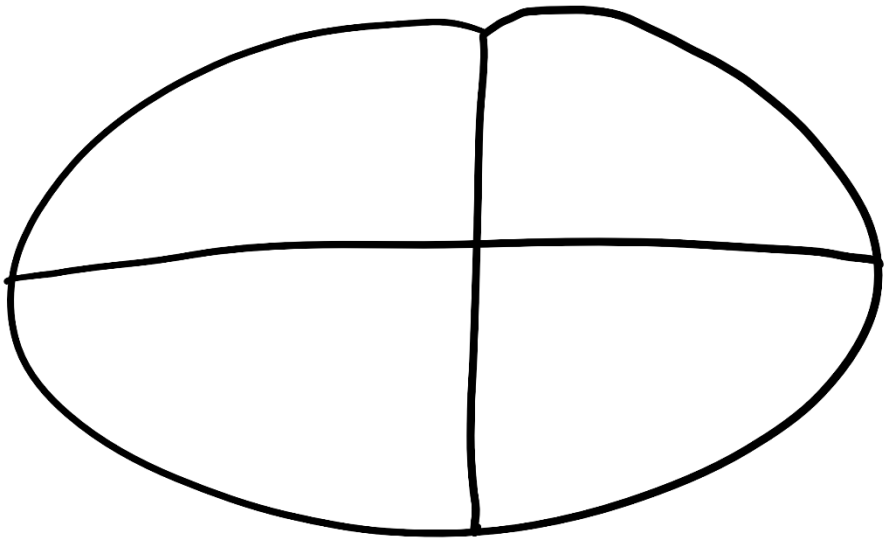


How many colours do you need for this? Colour it in!

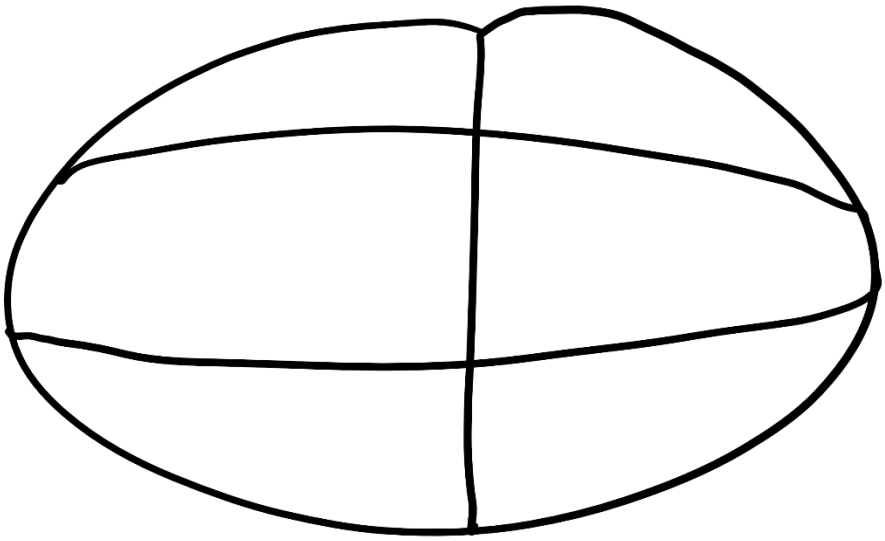


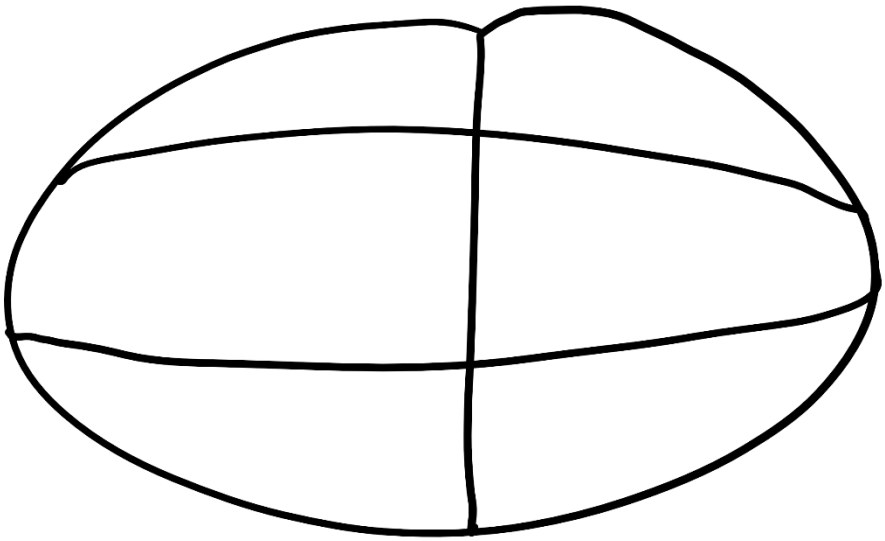
How many colours do you need for this? Colour it in!

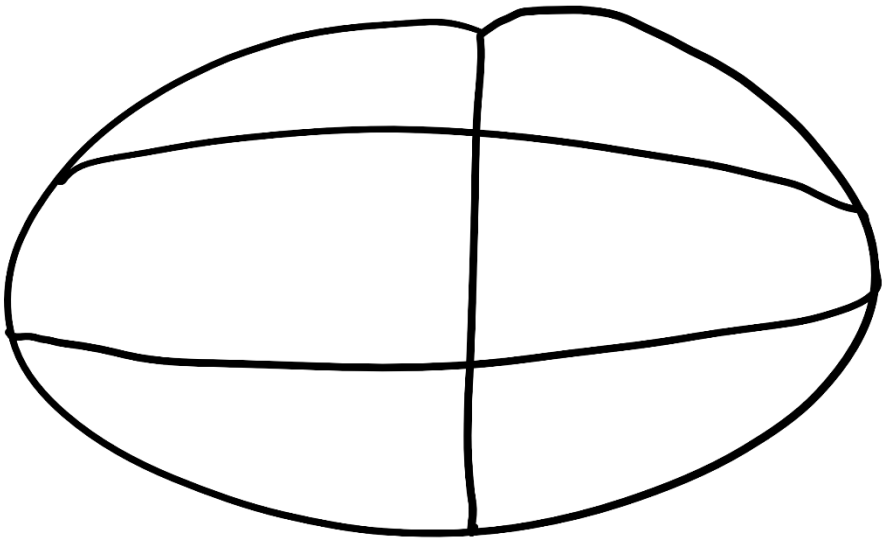




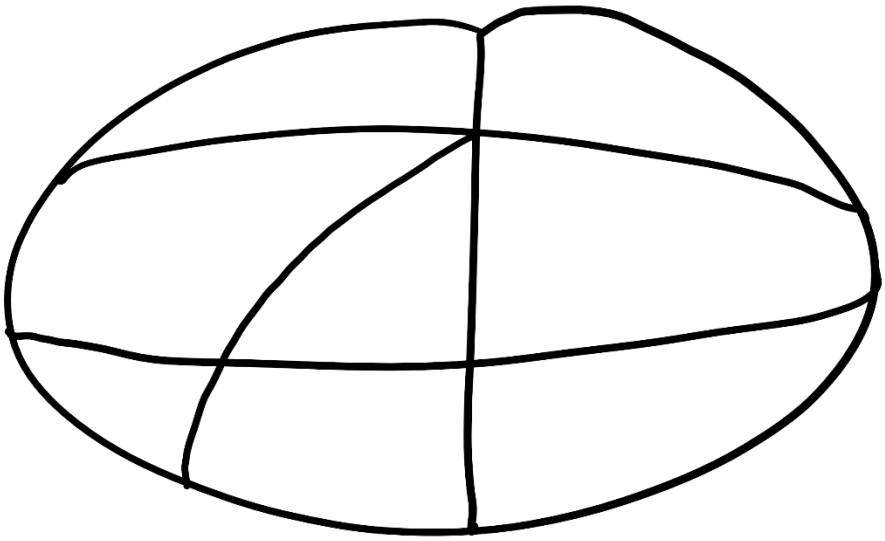
How many colours do you need for this? Colour it in!

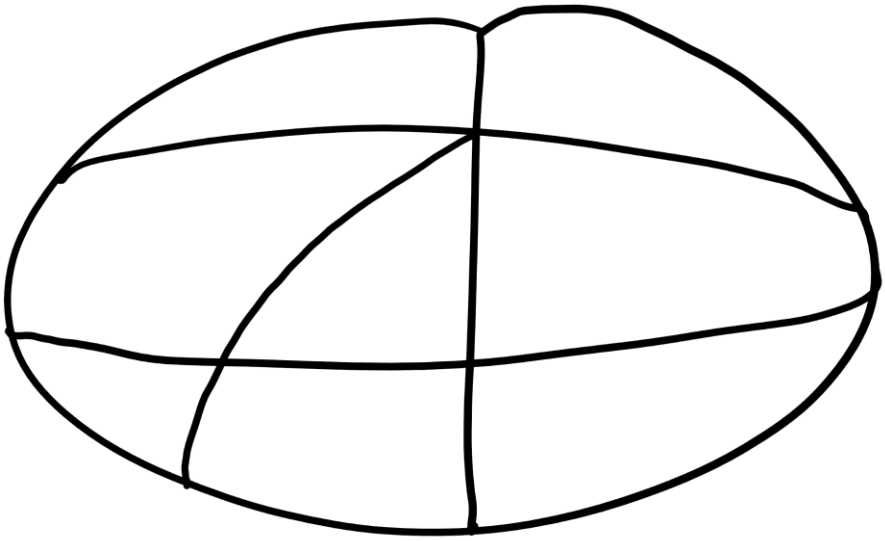


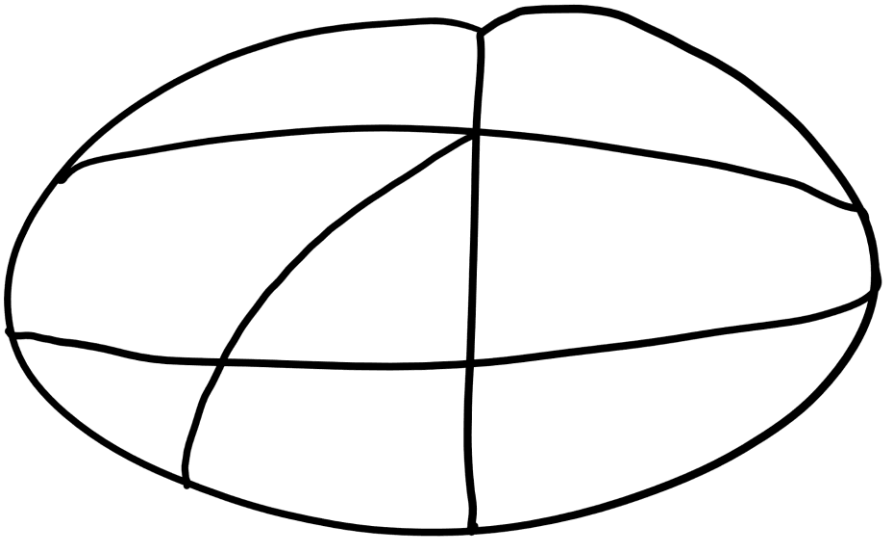




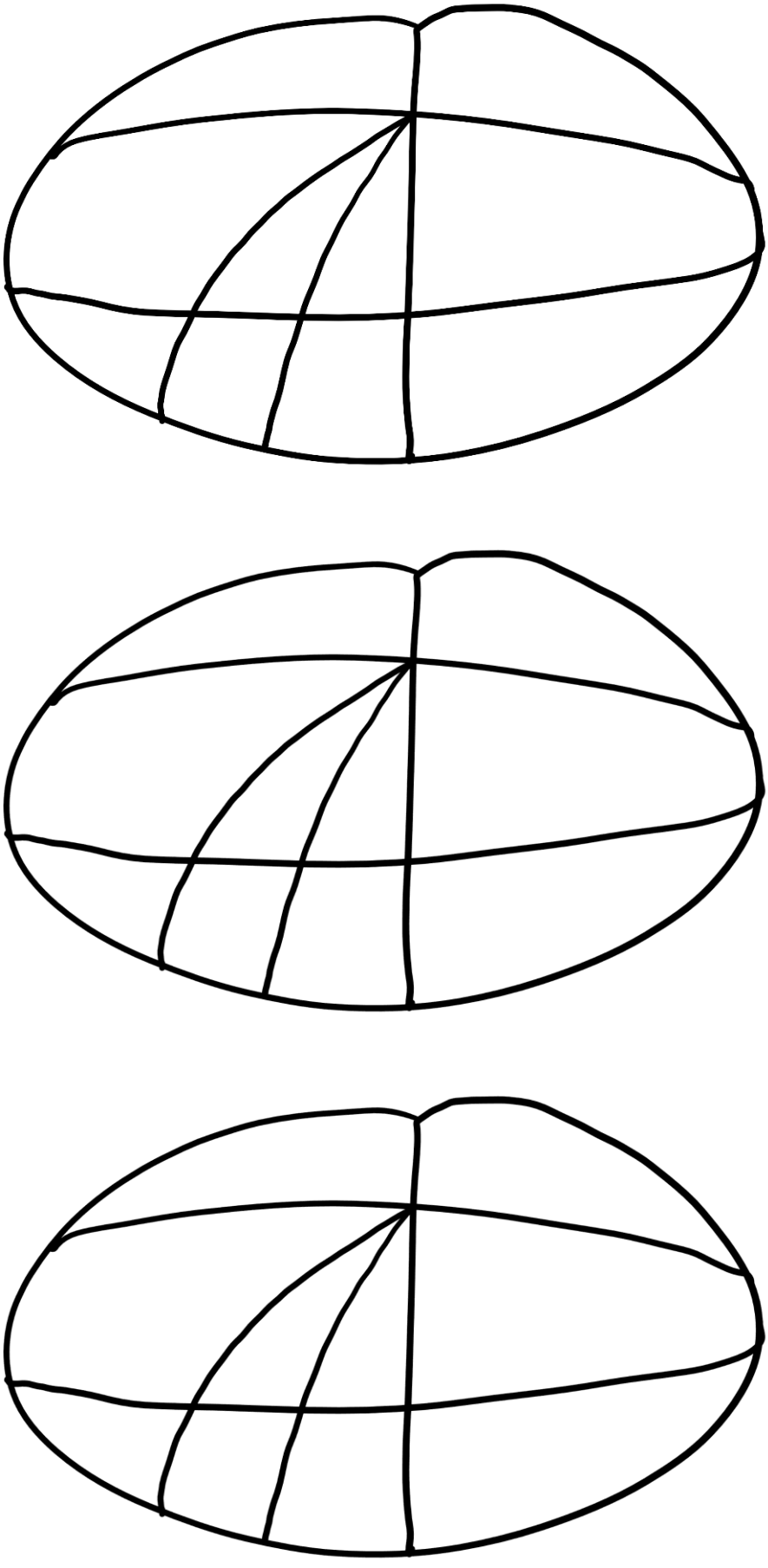
How many colours do you need for this? Colour it in!



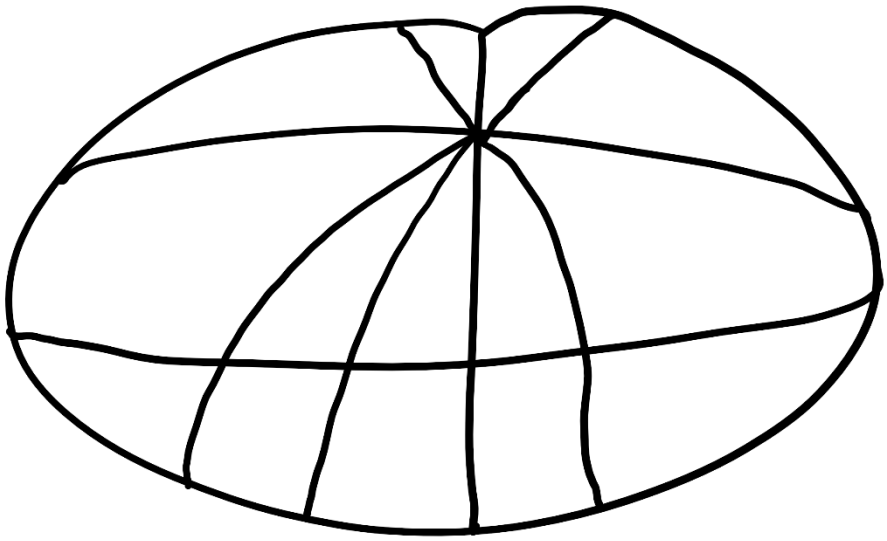


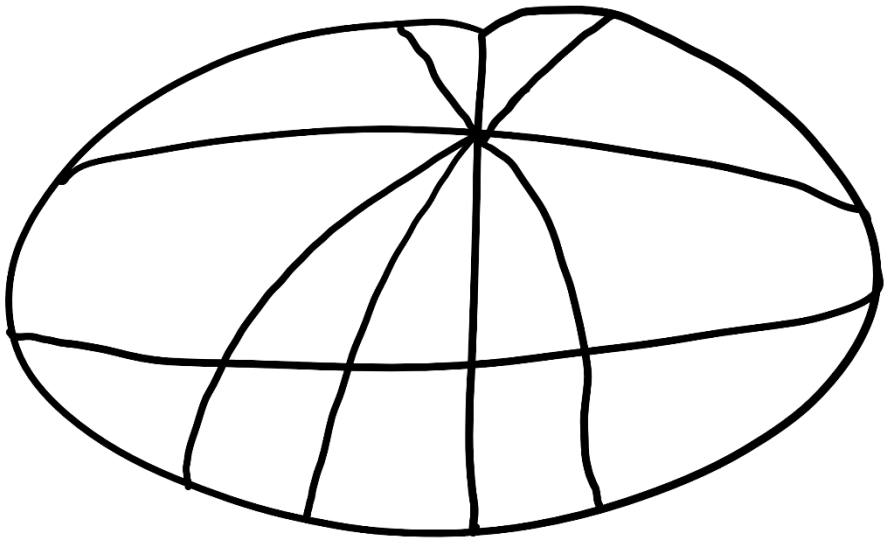


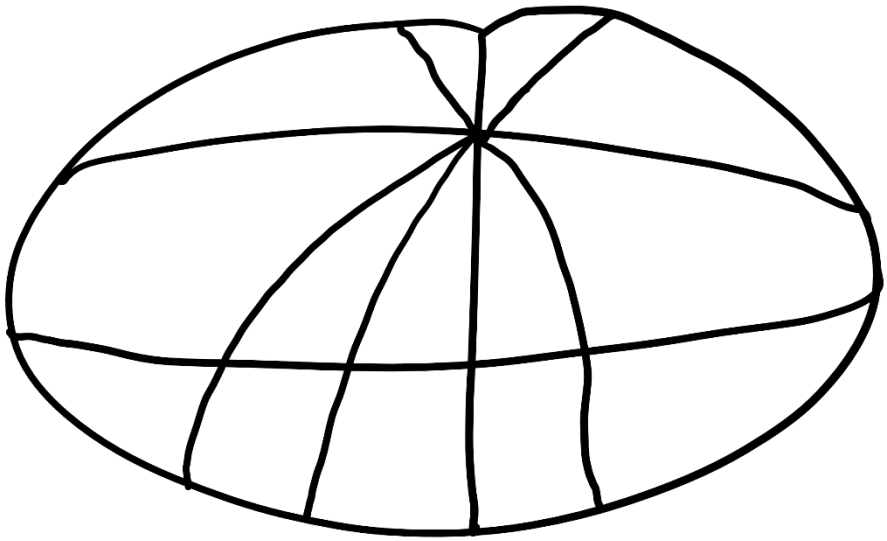
How many colours do you need for this? Colour it in!



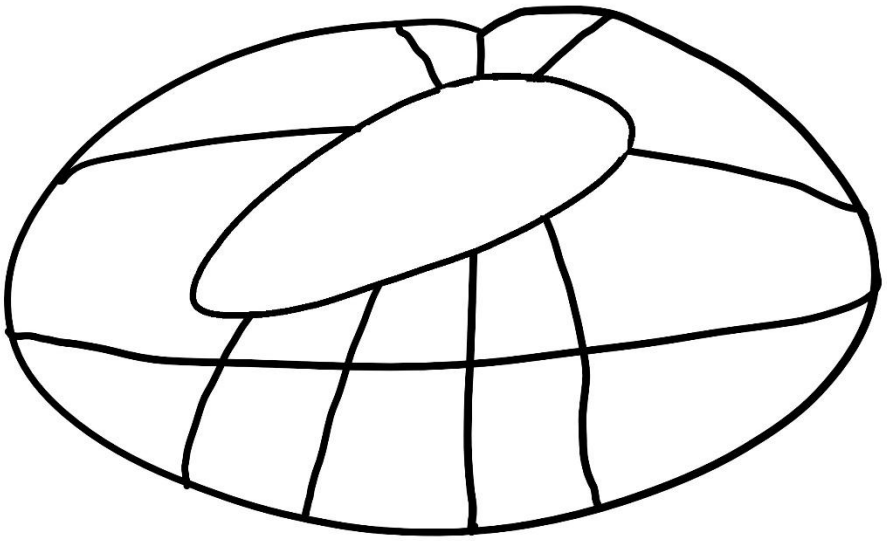
How many colours do you need for this? Colour it in!

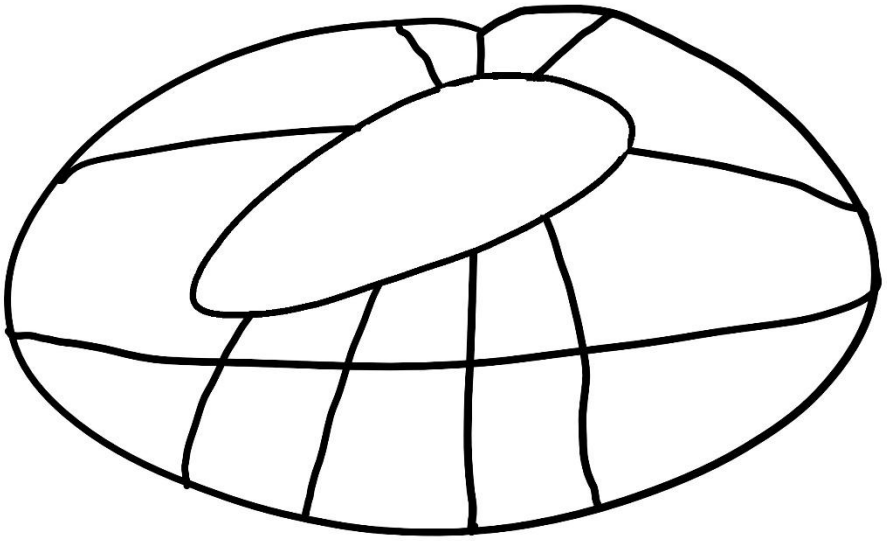


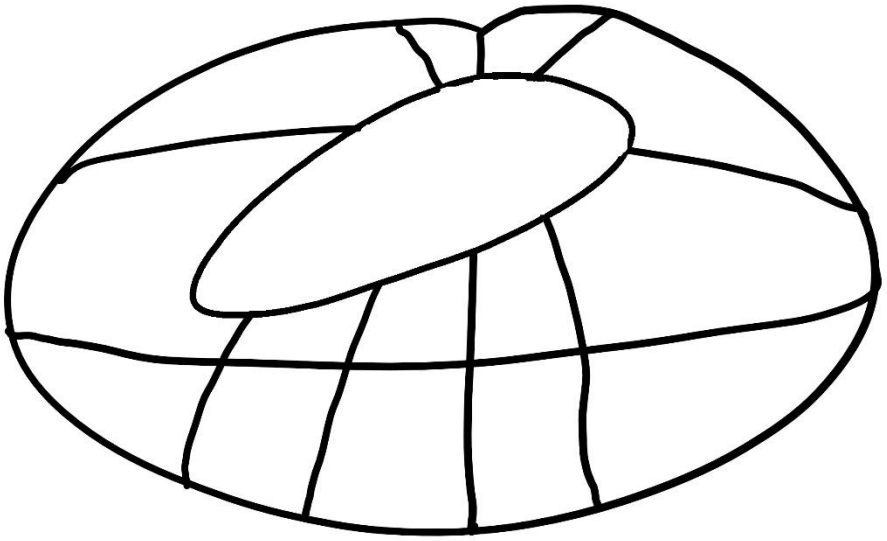




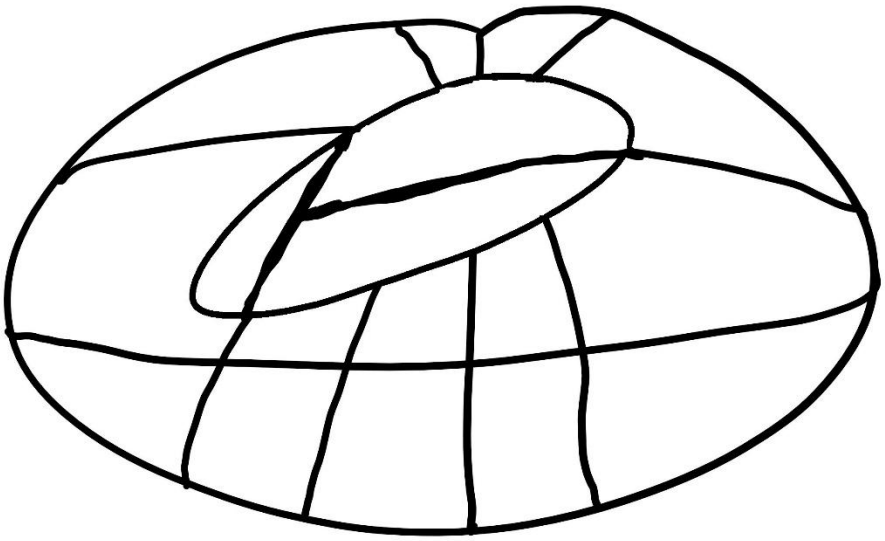
How many colours do you need for this? Colour it in!

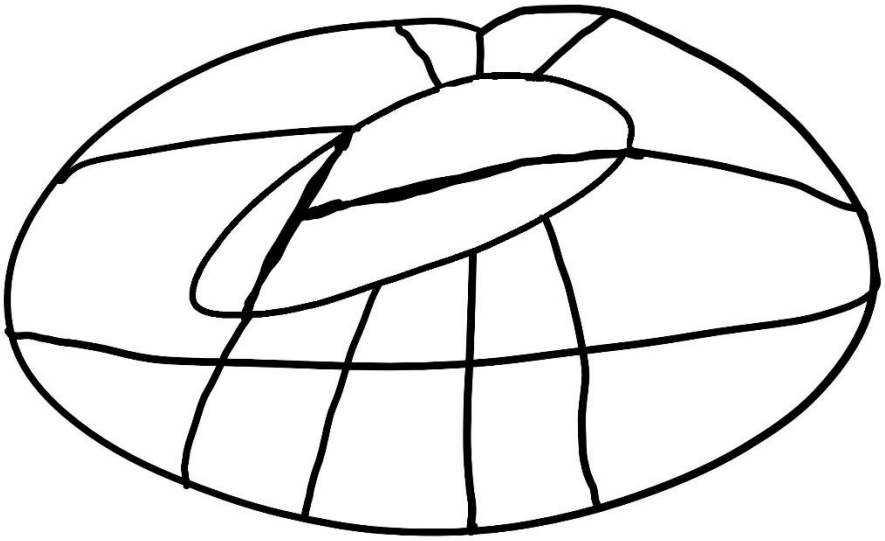


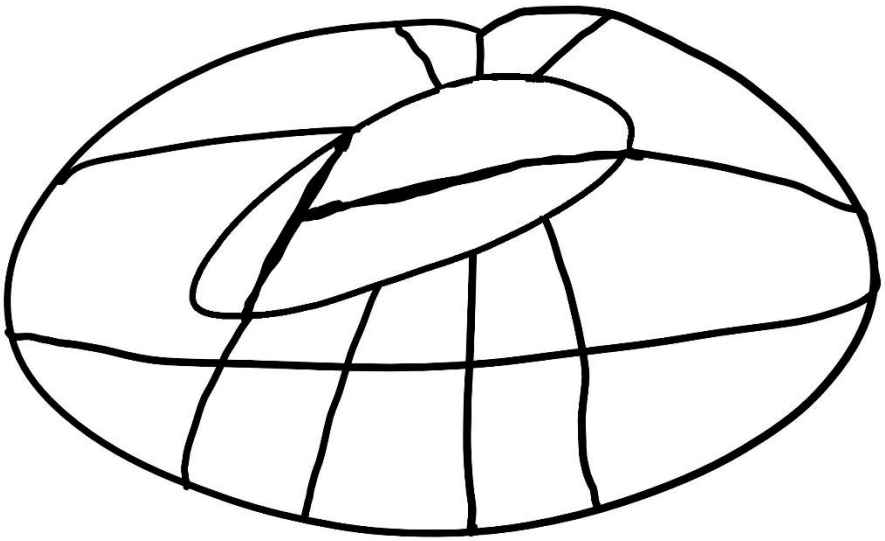




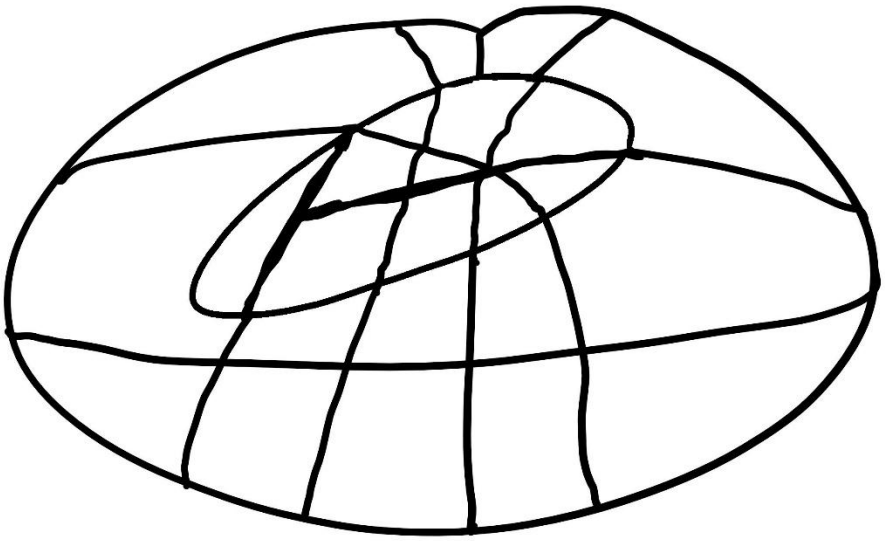
How many colours do you need for this? Colour it in!

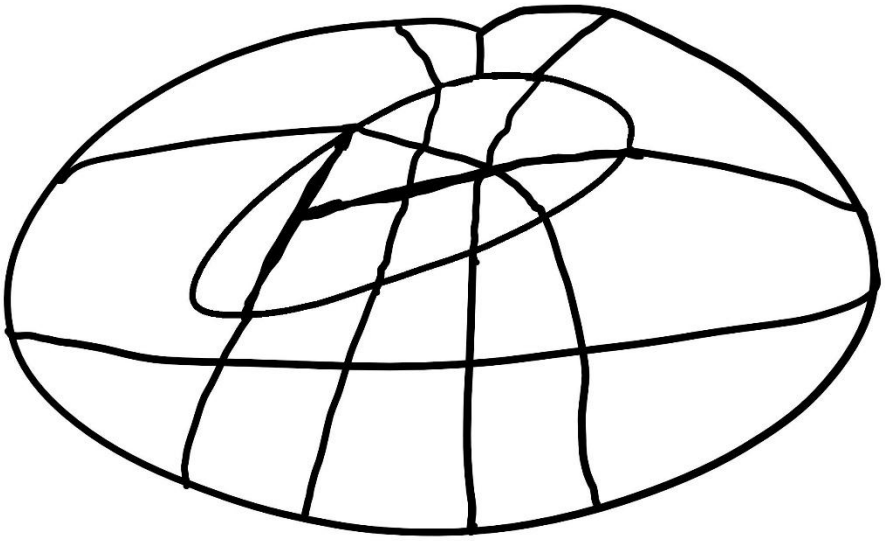


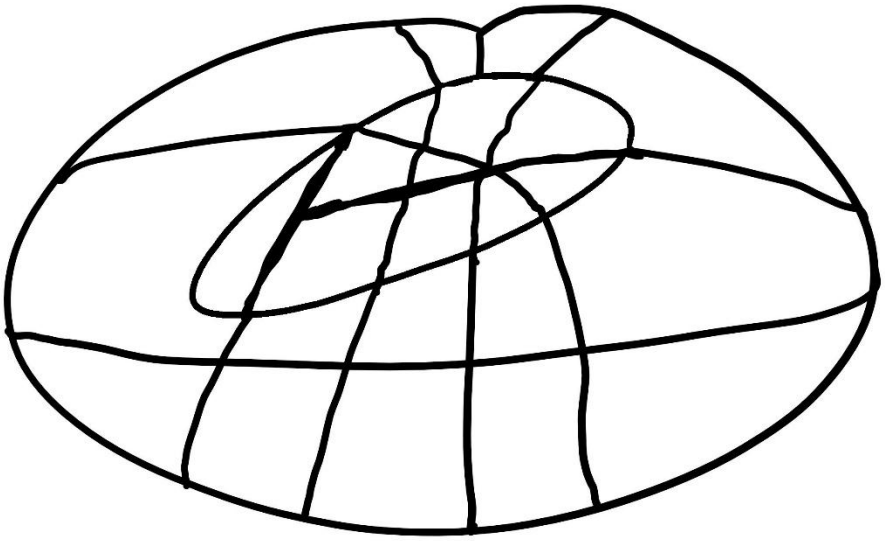




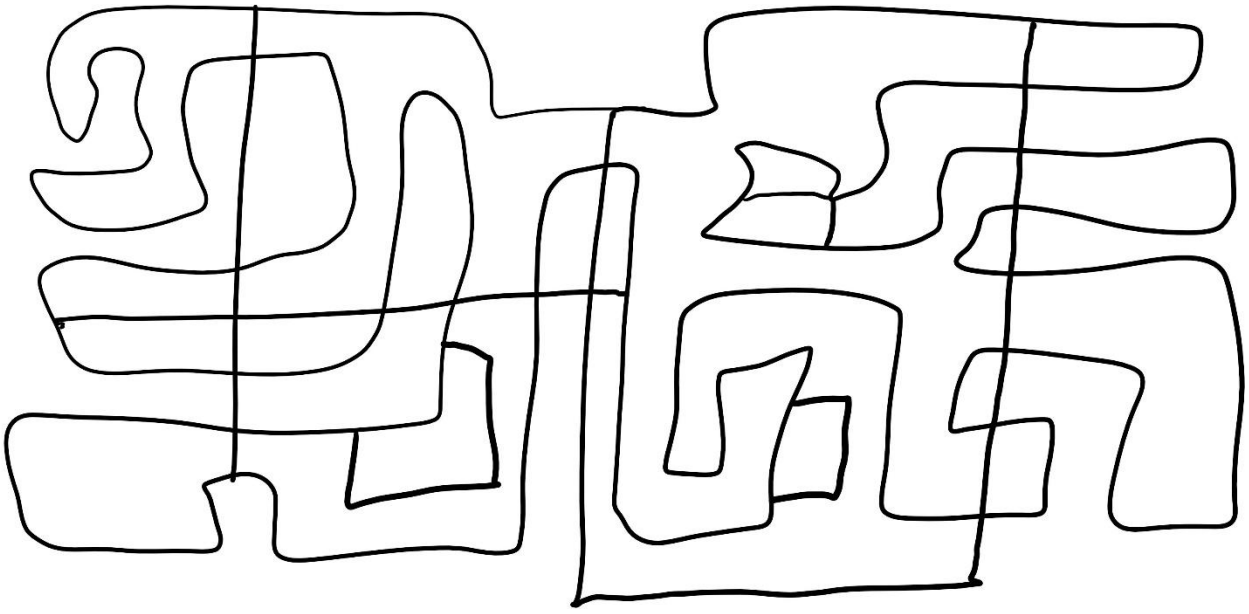
How many colours do you need for this? Colour it in!

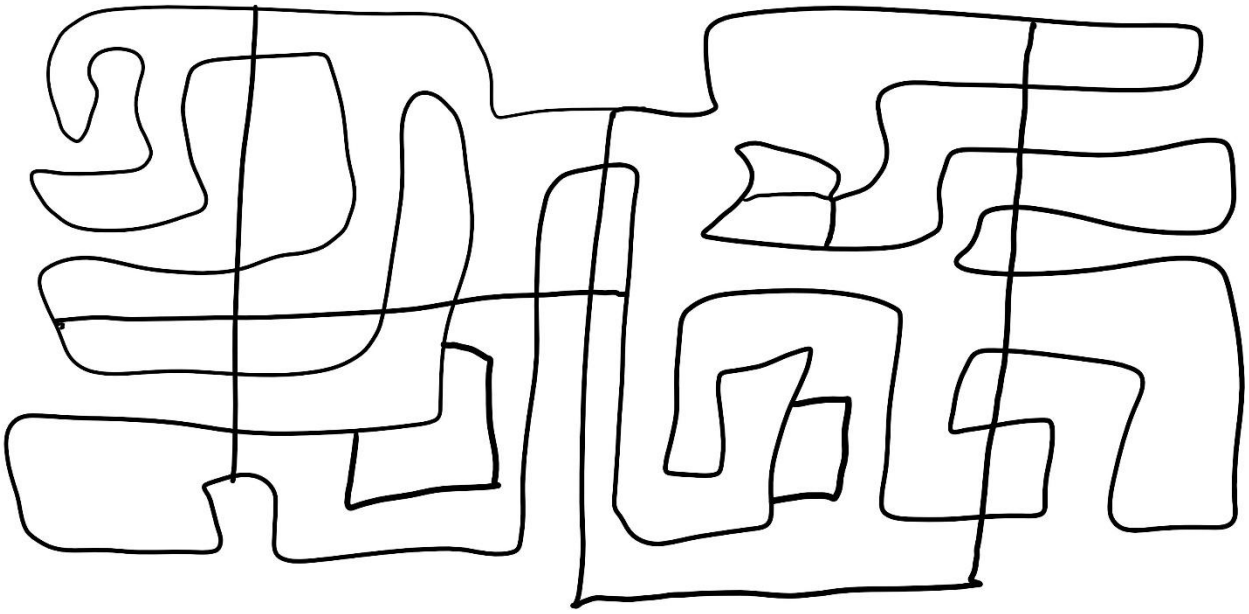


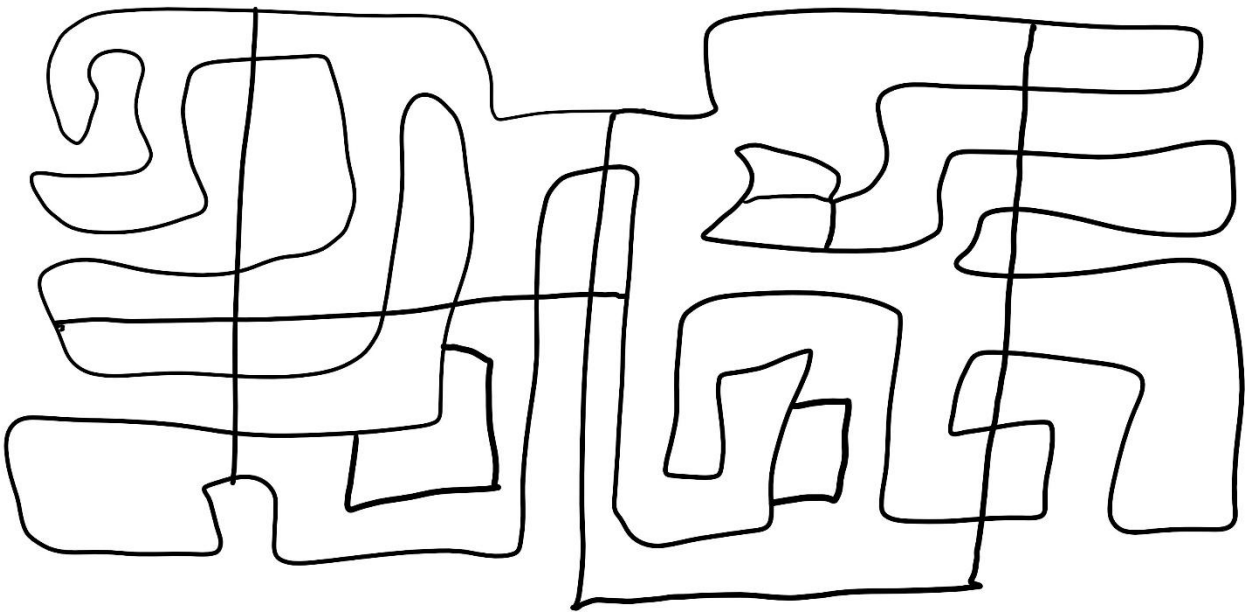




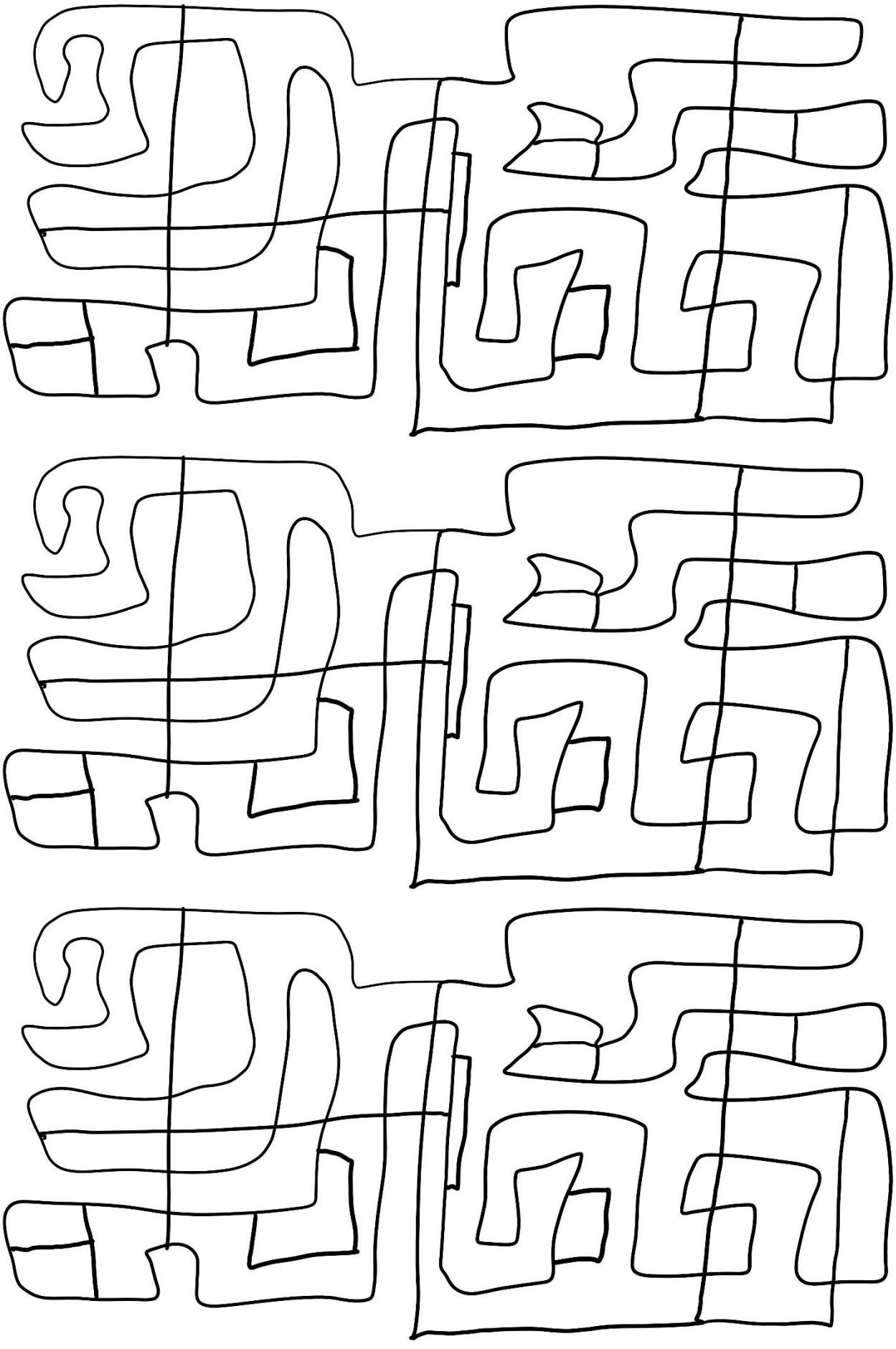
How many colours do you need for this? Colour it in!



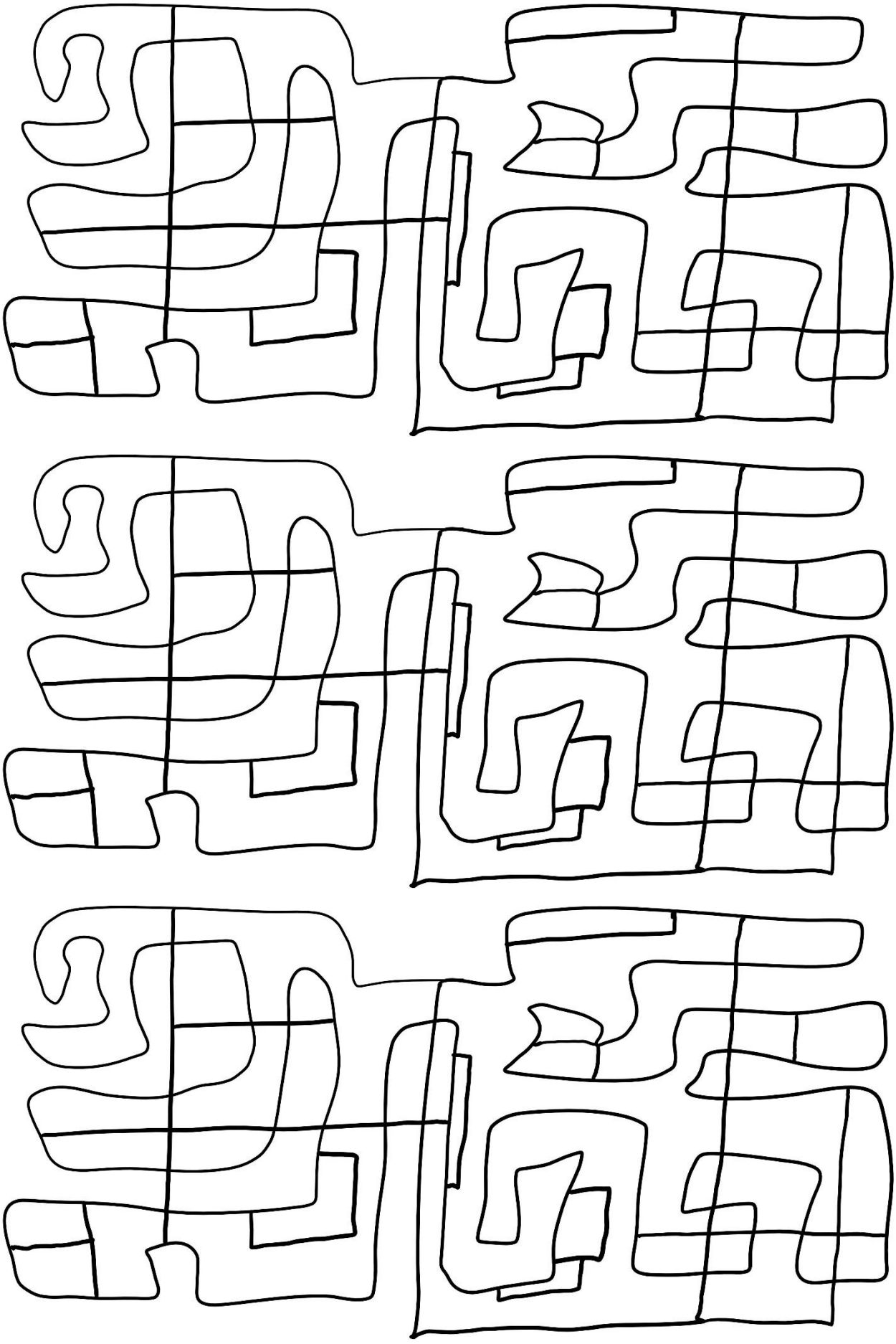




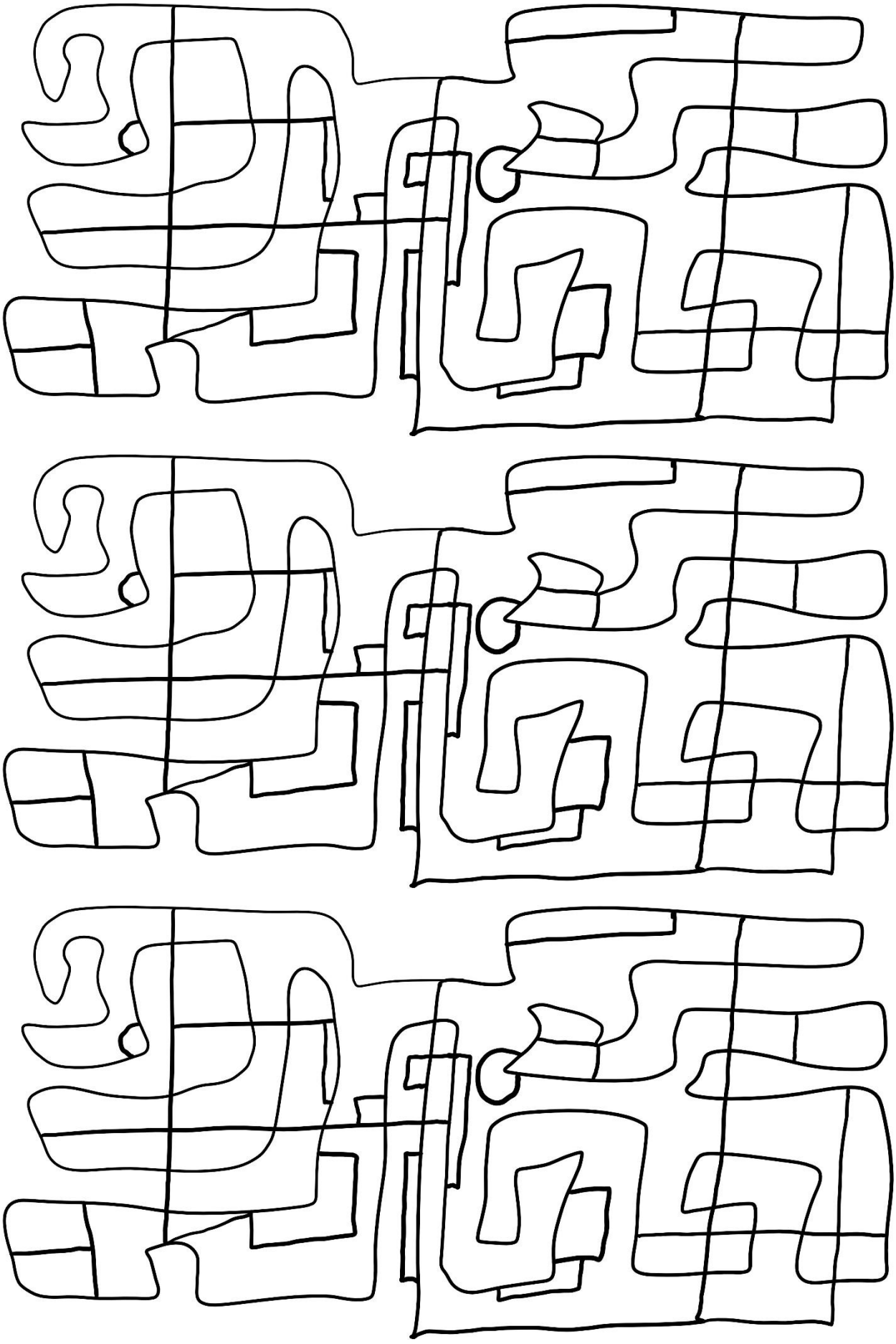
How many colours do you need for this? Colour it in!



How many colours do you need for this? Colour it in!



How many colours do you need for this? Colour it in!



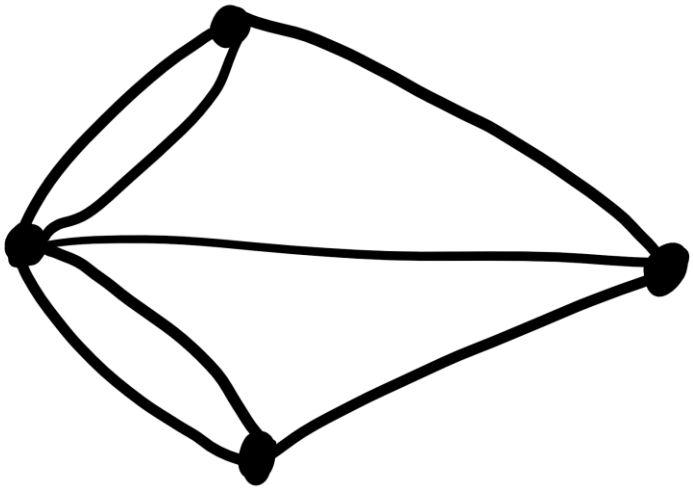
Let’s now try to put this into a mathematical conclusion!

What is the minimum number of colours we need to colour in any map?

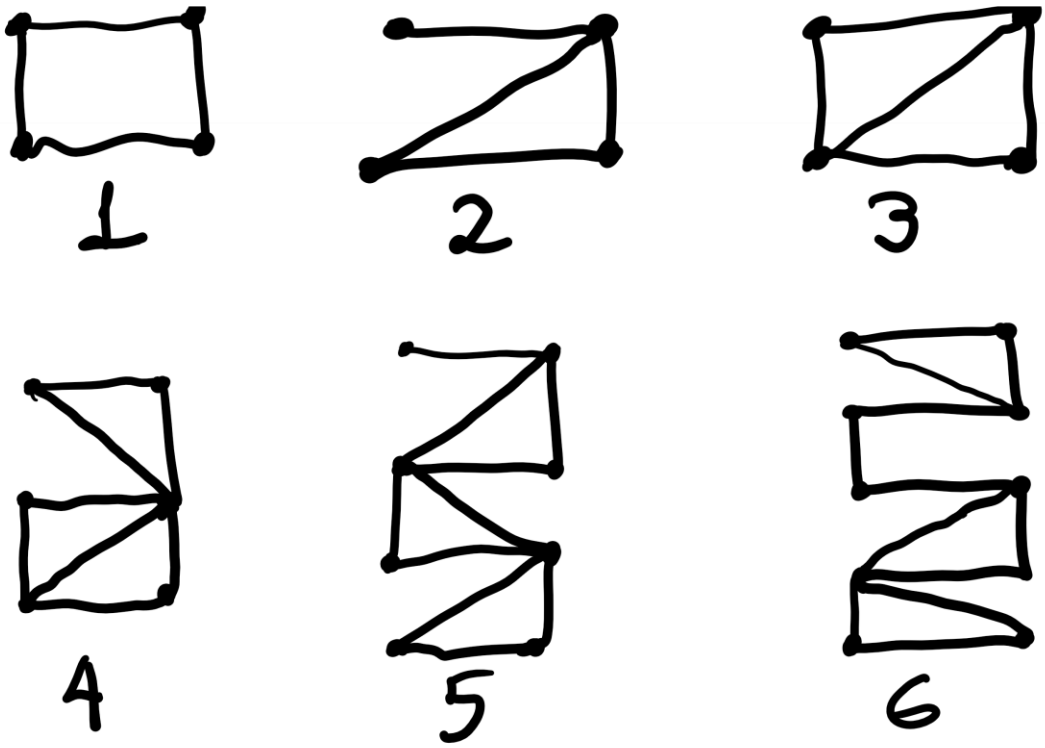
What about the ocean?

Can you trace this diagram without lifting your pencil?

Try several times using different approaches – use the space below for this.



Can you trace these diagrams without lifting your pencil?



Can you trace these diagrams without lifting your pencil?

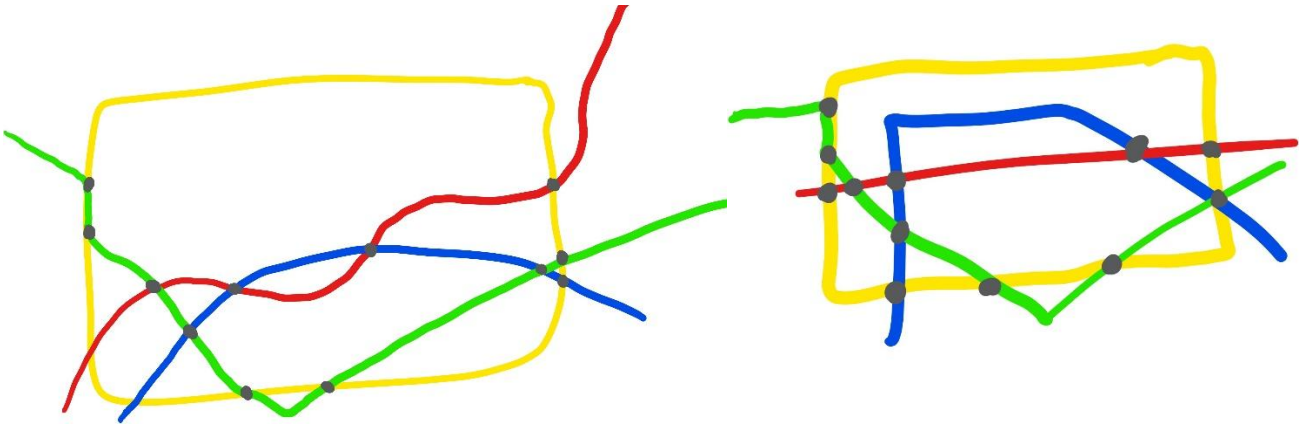
Jot down your results here.

Shape	Success?
1	Yes
2	
3	
4	
5	
6	
7	
8	

Can you try and articulate a rule for when it is possible to trace it?

What else has this helped us with?

I what aspects are these two maps the same and in what aspects are the different?

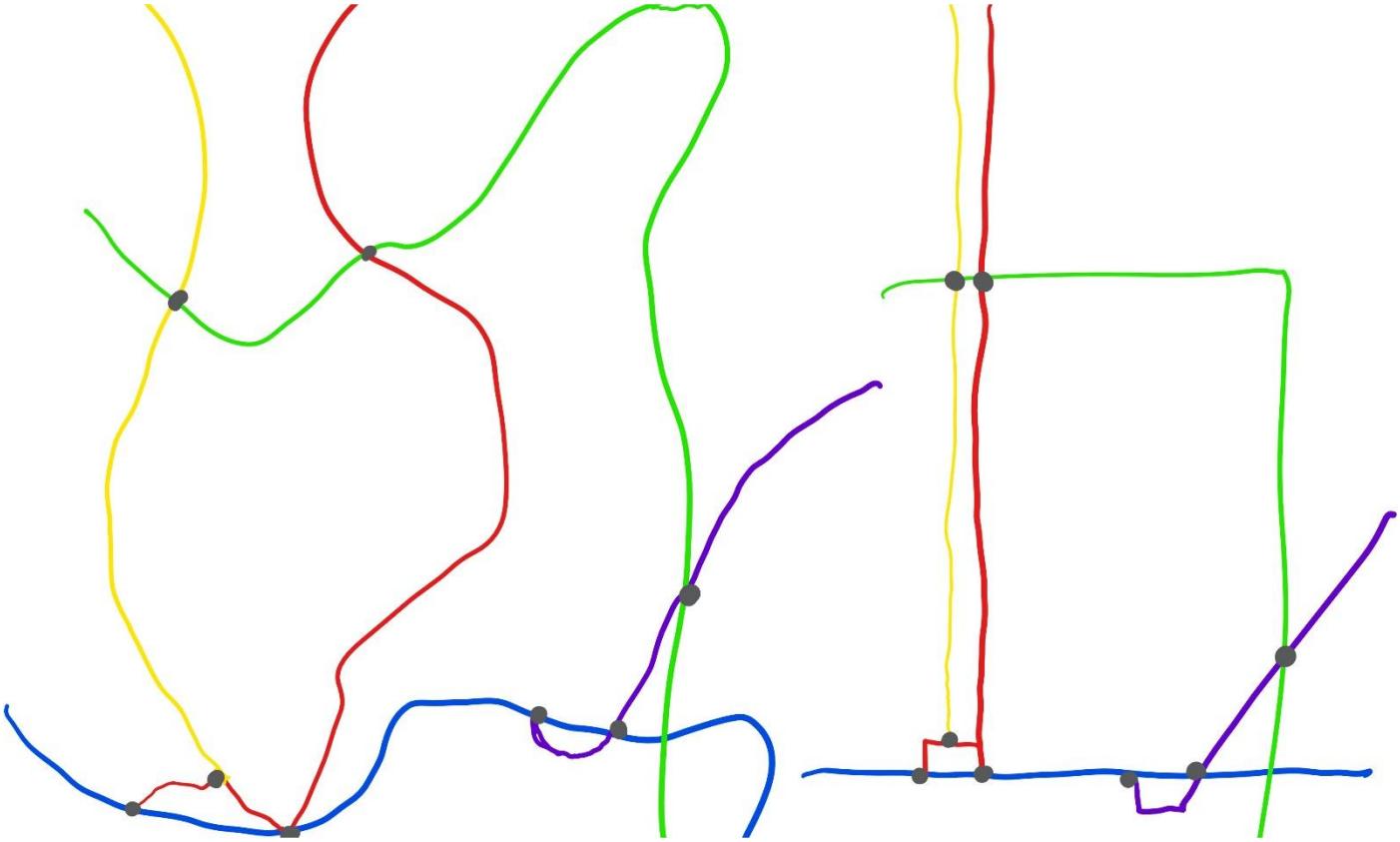


Same:

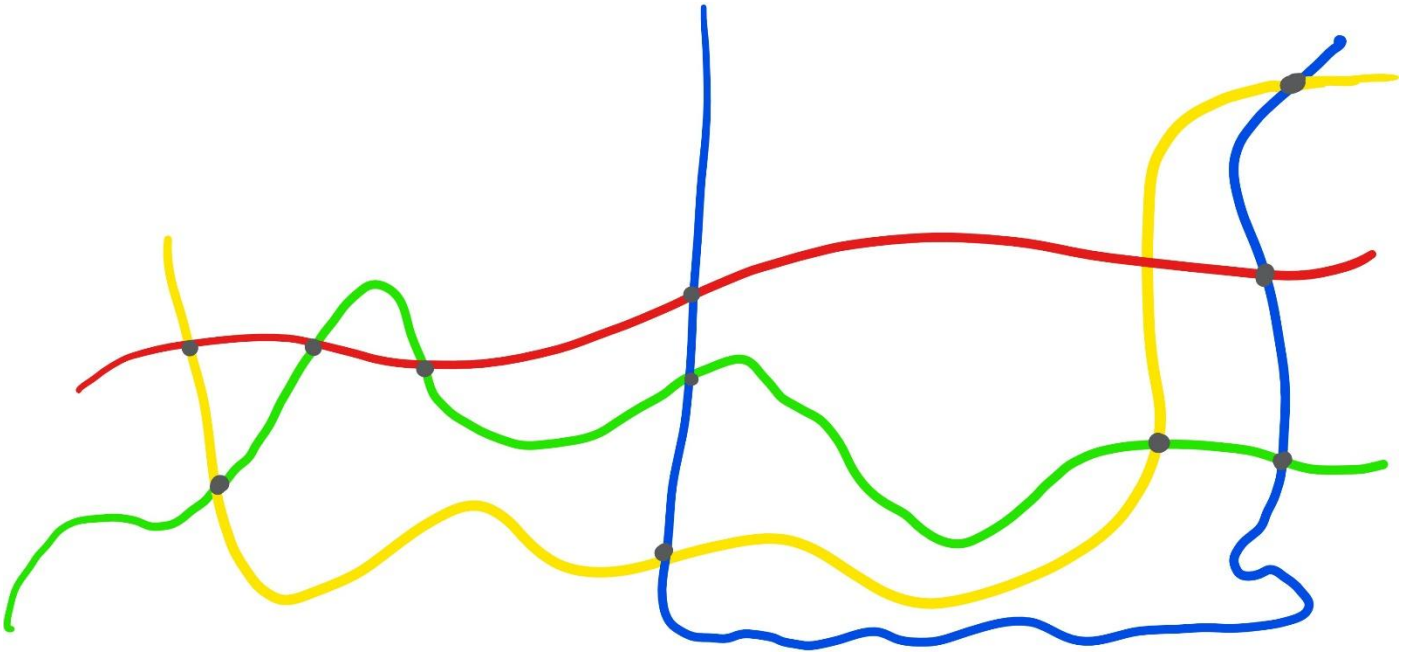
Different:

What would you do to improve? Are there any errors?

How about these two?



Can you create a simplified version for this map?



And a challenge to take home with you!