

Mathematics

The four colour map theorem

A long-standing mathematical problem

Downloadable resource

Miss Kidd-Rossiter



Try this



Binh is colouring this map of the United States. She applies the below condition.

No bordering states can have the same colour.

Binh

What is the minimum amount of colours Binh needs to use?

Can you find another map?

How many colours are needed to colour countries/states, etc. here?

Credit: wikimedia commons



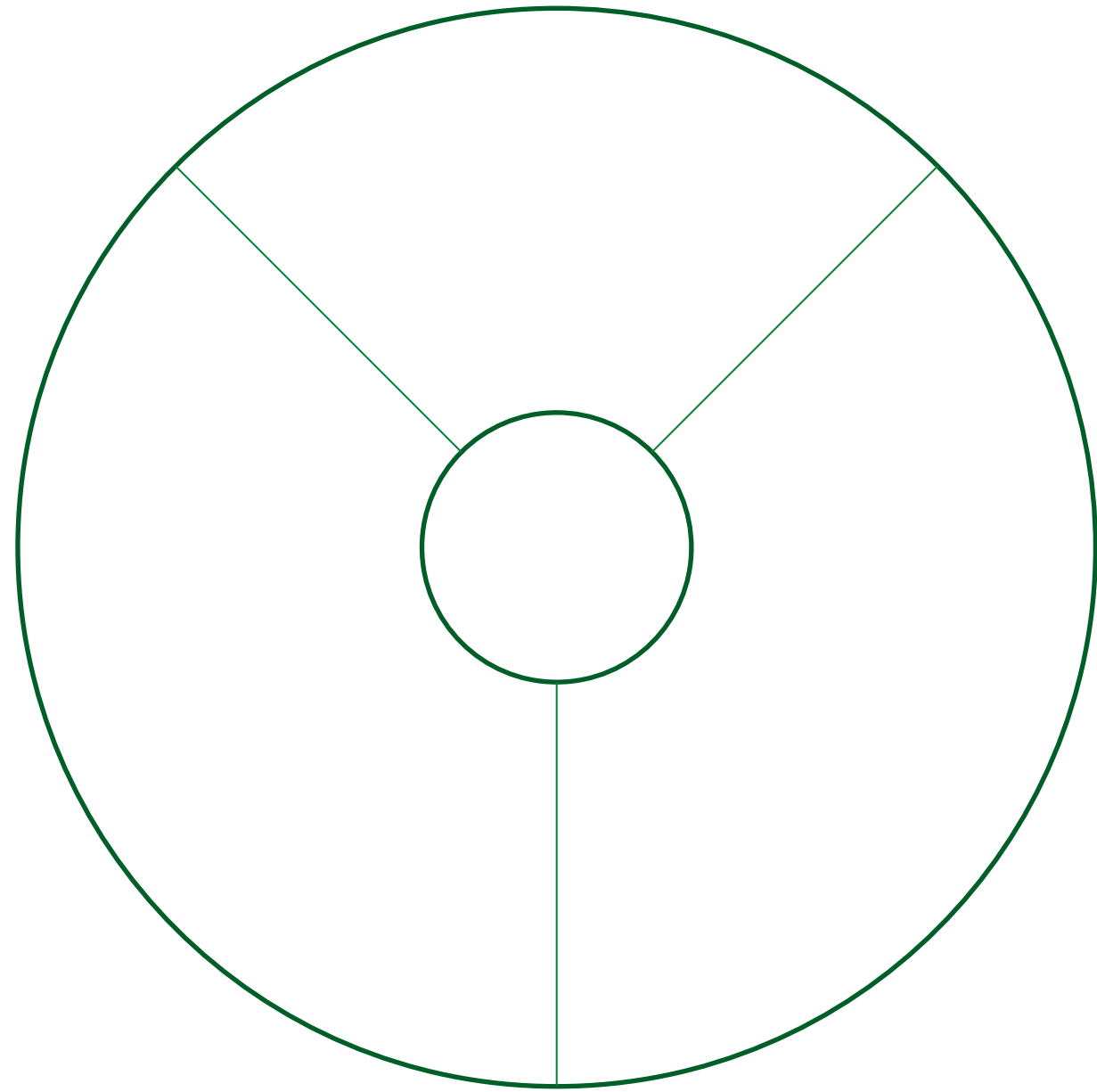
Connect

To prove this, you need to :

- show that all maps in existence only need four or less colours, or;
- find one map that needs five or more colours.



Connect



Independent task

1. Draw a network to show Country A bordering:
 - a. No other countries;
 - b. Two other countries;
 - c. Three other countries;
 - d. Four other countries;
 - e. Five other countries.
2. Draw a network to represent a map of Great Britain and Northern Ireland.
3. What is the most complex (possible) network that you can come up that could represent a map?



Explore

Antoni is thinking about the four colour map theorem.

All maps can make a network. Therefore,
all networks could make a map.

Antoni

Do you agree with Antoni?

Can you find some examples that either **show** or **don't show** this to be true?

