**Maths and the making of the modern and future world.**

**Lecture Four: Great mathematical myths**

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1. **Introduction**

**When we think of mathematics, we tend not to think about myths. Myths are the stuff of legend**

**A myth is a female moth**

1. **Myths that involve mathematics and the maths of myths**
2. The Golden Ratio

Most irrational number

Rectangle test

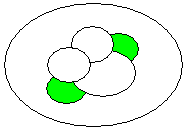
Root two

1. The Monty Hall Problem
2. The Four Colour Theorem

Following Brexit we are faced with the worry of the possible break up of the United Kingdom. Suppose that Scotland and Wales become independent, but the Northern Island does not? How will this alter the map? Well one of the things that will happen is that the map of the British Isles will no longer be colourable with four colours! How can this be true you ask? Surely we all know that any map can be coloured with at most four colours. Well almost. But this statement all depends upon what you mean by a map.

The subject of this section is the highly celebrated *four colour theorem* [??].

Appel and Haken



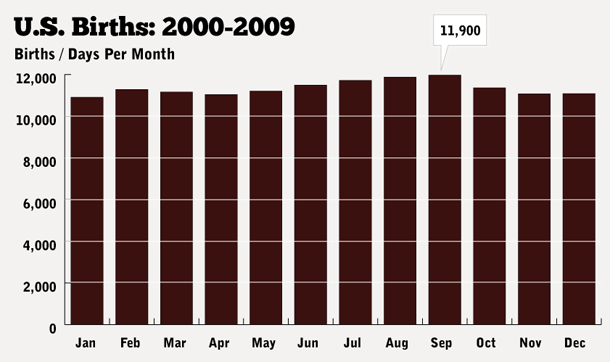
WiFi Offices

1. The Birthday Paradox

February **Baby**

Those **born** in February are **intelligent** and clever. Like the weather in February, their personality changes. February **babies** are attractive and considered sexy by most people. They have a hot-headed quality but are quiet and take time to come out of their shells.

You are most likely to have a birthday in September! 9th September



1. Cutting the Cake

Whole books have been written about how to cut a cake. This may seem like a trivial problem, after all does it really matter who gets the most birthday cake. But in fact it is very serious if instead of cake we think of someone’s assets. Divorcing couples have to hire (very) expensive lawyers

Voting

Rounding error

**References**

[1] I. Stewart, *How to cut a cake*

[2 ] R. Wilson, *Four Colours suffice*

[3] I. Newton,(1692), *The Principia*

[4 ] Martin Gardner (1999), Mental Magic, Sterling Publishing Co.

[5] K. Devlin, (2003), *The Millenium Problems,* Indigo

[6] M. du Sautoy, ( 2003), *The music of the primes*, Harper Collins

[7] S. Singh, (1997), *Fermat’s Last Theorem,* Fourth Estate Ltd.

Chris Budd, April 2019