



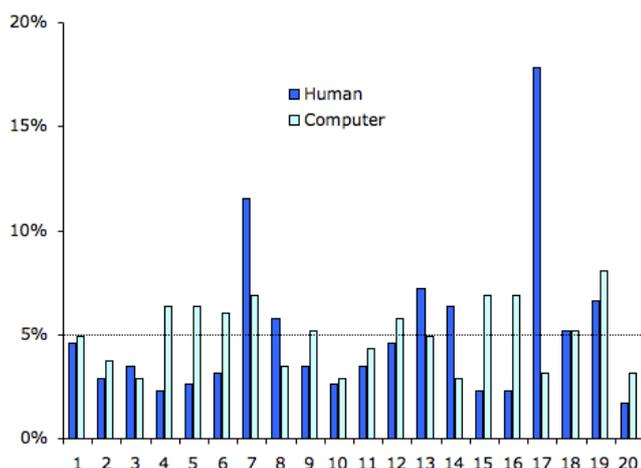
### News

Welcome to the 17<sup>th</sup> maths department newsletter, which is quite exciting because, as you might know, 17 is the most interesting number. If you didn't already know this,

we'll do our best to explain why. In the Sherlock Holmes stories, it is said that "221B Baker Street was a suite of rooms on the first floor of a



lodging house above a flight of 17 steps." As well as this, it is also the most commonly chosen number between 1 and 20, as shown on this bar chart.<sup>1</sup>



And that's not all...

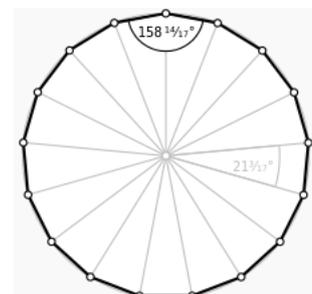
### Scary 17

In Italy, the number 17 is considered unlucky because its Roman numeral version XVII is an anagram of the Latin word VIXI, which means 'I have lived' or 'My life is over'.

### Maths Word

A **heptadecagon** is a 17 sided shape.

When Carl Gauss showed, in 1796, that you could construct one of these using only geometry, it was the first new



polygon to be constructed for 2000 years.

### Cyclic 17

The sequence of seventeenths, written in decimal form, creates a cyclic pattern.

1/17 =	0.05882352941176470588235294117647...
2/17 =	0.1176470588235294117647...
3/17 =	0.176470588235294117647...
4/17 =	0.2352941176470588235294117647...
5/17 =	0.2941176470588235294117647...
6/17 =	0.352941176470588235294117647...
7/17 =	0.41176470588235294117647...
8/17 =	0.470588235294117647...
9/17 =	0.52941176470588235294117647...
10/17 =	0.5882352941176470588235294117647...
11/17 =	0.6470588235294117647...
12/17 =	0.70588235294117647...
13/17 =	0.76470588235294117647...
14/17 =	0.82352941176470588235294117647...
15/17 =	0.882352941176470588235294117647...
16/17 =	0.941176470588235294117647...

### Quote

"I had the craziest dream. I was 17. I was back in high school. It was terrible."

**Zac Efron's character in 17 Again**

Obviously our school isn't terrible, like Zac Efron's pretend school. We have all sorts of nice things at Camp Hill, like maths workshop. Why not come along? It's every Friday lunchtime in room 13 😊

1. Why do you think the person who made this graph drew a line across it at 5%?

## Sudoku 17

It has recently been proved that 17 is the minimum number of clues needed in a Sudoku puzzle to produce a unique solution.<sup>2</sup> Here are two puzzles. The first one is moderately difficult, but the second one has only 17 clues in the grid, making it very difficult. If you complete this puzzle, show it to your maths teacher. We'll give some house points to the first few correct solutions we see.

### Moderately difficult puzzle

1		5	2		9			
	4			6			9	5
								3
	9	7	3				8	4
			4		8			
8	2				6	3	7	
9								
2	1			9			5	
			6		5	8		9

### Very difficult 17 clue puzzle

				5			7	4
8		1						
	7		2	4				
6						1		
2			1		6	3		
	4						2	
			8					

## 17 Types of Wallpaper

It is a strange fact that, if you classify them by their symmetries, there are only 17 possible different types of wallpaper pattern. You can get an idea of how this works by looking at the following examples and thinking about the different kinds of symmetries they have.



Maths is really all about structure. We often find that things that look different at first turn out to be just different versions of the same thing. Look at Mr Silly's wallpaper. Does it have the same structure as any of the ones above?<sup>3</sup>



2. To find out more about this, watch the video at <https://www.youtube.com/watch?v=MlyTq-xVkJQE>

3. Hint: It does... otherwise it would be a bit of a silly question.