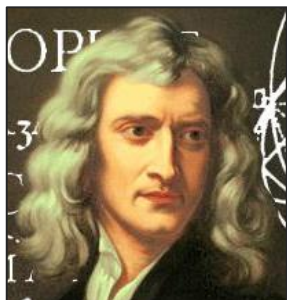**31, 331, 3331, 33331, 333331, 3333331 and 33333331 are all prime**

## News

So what's been happening since the last newsletter? The Royal Society came into school on 2nd March to make a short film about our Thursday maths club, which was good fun. This is the society that was founded in 1660 by Sir Christopher Wren and a bunch of other people who were interested in science, with the approval of the newly crowned King Charles II. The picture is of their 12th president. Do you know who it is?

## Code Breakers

Our best year 10 code breakers, Ellie Barrell and Emma Hillier have finished 11th in this year's Alan Turing Cryptography Competition.[1] They were also invited to Bletchley Park, as a result of their success in the Southampton Cipher Challenge before Christmas. Here is a cartoon joke about code breaking. Can you work out if the encoded message actually really says something? We're not sure.



BLETCHLEY PARK RESTAURANT

MAZURKE

*"HVQLO TWXBD YZRSU JDMVN SDYGH."*

## Maths at the Cinema



BASED ON THE UNTOLD TRUE STORY

MEET THE WOMEN YOU DON'T KNOW,
BEHIND THE MISSION YOU DO.

HIDDEN FIGURES

Hidden Figures is the story of a team of African-American women mathematicians who played a vital role working for NASA during the early years of the US space program. Following the successful launch, in 1957, of the Russian satellite, Sputnik, the race is on to get the first men into space. The film is set in 1961 and deals with issues of race as well as maths. Everyone we know who has seen it says it's good. If you don't catch it at the cinema, we'll be watching it in school later this year.

1. That's 11th nationally, out of more than 1000 teams that entered.

## Competition

The Edge Hill University competition season for year 9 has started again. Last year we finished 3rd nationally, out of 400 or so teams, so we're hoping to do well again this year. For the first round, the teams had to solve one of two puzzles. Here is one of them.

Amy and Ally both play in the same football team and Gitta is the manager. There are three reserves in the first team squad. Gitta has a contact for all of the first team squad on her phone and all of the squad have Gitta as a contact on their phones because phone messages can always go backwards and forwards between two people.

All of the players and reserves have contacts for some of the other members of the first team squad on their phones to help with organisation. Gitta and all of the squad except Amy have different numbers of first team squad contacts on their phones. Amy has the same number of contacts as Ally. Gitta asked Amy how many contacts she had on her phone. She said, "I don't know but I think that it is an even number".

"I am sure that you are not correct Amy," said Gitta.

"I think that I might have nine football contacts on my phone," said Ally.

"I don't think that Ally is right either," said Gitta.

"I think that I can work out how many contacts you must both have," said Gitta. How did Gitta know that they were both wrong?

How many contacts do Amy and Ally both have?

## Maths Puzzles

As you know, Mean Girls is one of our favourite maths films at Camp Hill. Why not see if you would make a good Mathlete by having a go at these questions from the competition in the film?

### Question 1

Twice the larger of two numbers is three more than five times the smaller and the sum of four times the larger and three times the smaller is 71.

What are the numbers?

### Question 2

Find an odd three-digit number whose digits add up to 12.

The digits are all different and the difference between the first two digits equals the difference between the last two digits.

## Maths Quote

"You know, people think mathematics is complicated. Mathematics is the simple bit. It's the stuff we can understand. It's cats that are complicated. I mean, what is it in those little molecules and stuff that make one cat behave differently from another, or that make a cat? And how do you define a cat? I have no idea." **John Conway**

If you do know how to define a cat, why not come to maths workshop and let us know? We'll pass your definitions on to John Conway.

The solution to the cryptarithm in newsletter 29 is 984 + 8584 + 364832 + 75732 = 450132