News

Welcome to the latest maths newsletter! It's been quite a while since the last one, mainly as I've been really struggling to find something interesting to say about the number 54. The man in the picture is named Peter Gustav Lejeune Dirichlet and he was a famous mathematician from the 19th century. He proved lots of theorems, such as one that says, "In any arithmetic progression with the first term coprime to the difference between the terms, there are infinitely many prime numbers." That's actually quite an interesting fact. Dirichlet died on 5th May 1859, which is just over 160 years ago, and it's still true that in any arithmetic progression with the first term coprime to the difference between the terms, there are infinitely many prime numbers. It's still true, even if you have no idea what it means, and it always will be. Maths isn't about people's opinions. If it's true, it's true. That's why it's the best subject.
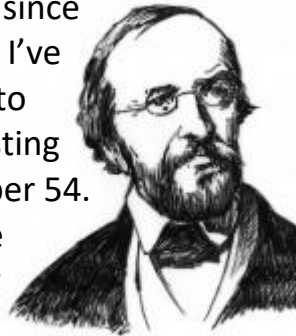
Joke

When Lord Nelson died he was 5 feet tall. His statue in Trafalgar Square is 15 feet tall.
That's Horatio of 3:1.[1]

Maths Words

Two things are **mutually exclusive** if they cannot both happen at the same time. For example, Mr Hamblett was recently given a card that originally said "You're a Star!" on it, but the student who gave it to him crossed out the word 'star' and replaced it with 'maths teacher'. Mr Hamblett is of the opinion that it is perfectly possible for him to be both a maths teacher and a star, because the two things are not mutually exclusive, and that the crossing out and replacing of words was completely unnecessary.[2]

Team Maths Challenge

A few weeks ago, on Friday 29th March, we took part in the UKMT Team Maths Challenge at Aston UEA. It was a fun day out, as always, and our team did very well, finishing in second place.[3]

From left to right - Kiera Fernandes, Aahana Jain, Kirsten Rhodes James and Anika Mitra.

Last year, this was good enough to get us through to the national finals because we were so much better at coming second than all the other teams who came second. We'll let you know how it goes.

1. This is funny. Trust us.
2. It was, however, quite funny.
3. It's been a few weeks now, and I can't remember how many teams there were. It was loads though.

Maths Fail

You know when people say, "Why do I need maths?" - This is the reason why.[4]
I went into HMV the other day and saw this! Two DVDs for £20 or, if you prefer, £9.99 each. I suppose the whole point of HMV is to provide entertainment though, and I thought this was quite funny.

Puzzle

Here is a maths puzzle from Catriona Shearer (@Cshearer41), who posts loads of brilliant puzzles like this on her Twitter page.

The diagram consists of two circles.
The lines meet at the same point where the circles meet.
What is the value of $a + b$?
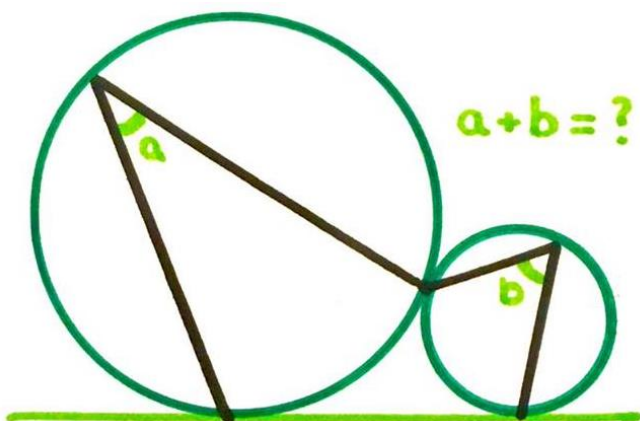
Let us know if you manage to work it out.

Statistics

Here's a little story about statistics and why you should like it.

During World War II, the US Navy tried to determine where they needed to armour their aircraft to ensure they came back home. They ran an analysis of where planes had been shot up, and came up with this.
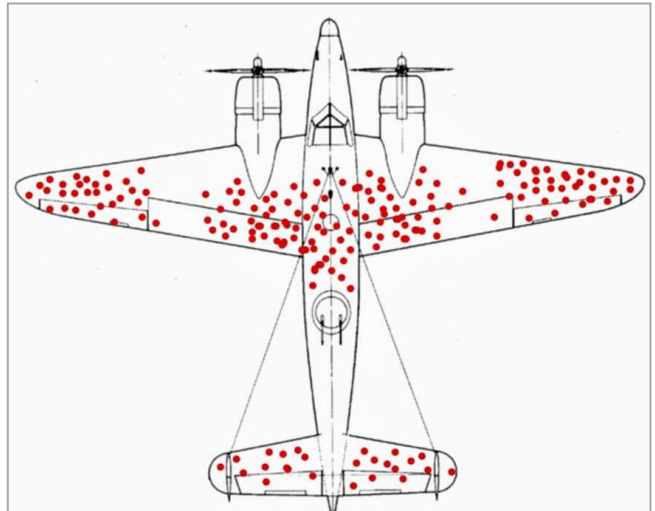
Obviously the places that needed to be up-armoured[5] were the wingtips, the central body, and the elevators at the rear. That's where the planes were all getting shot.

Abraham Wald, a statistician, disagreed. He thought it would be better to armour the nose area, engines, and mid-body. Which was crazy, of course. That's not where the planes were getting shot.

Except Mr. Wald realised what the others didn't. The planes were getting shot there too, but they weren't making it home. What the Navy thought it had done was analyse where aircraft were suffering the most damage. What they had actually done was analyse where aircraft could suffer the most damage without catastrophic failure. They weren't looking at the whole sample set, only the survivors.

And unlike most stories you find like this on the internet, this one is actually true!

4. And the reason we need English is because I didn't really know how to punctuate those couple of sentences properly. In the end I decided to use one of those dash things, but I'm not sure it looks right.
5. Apparently that's a word.