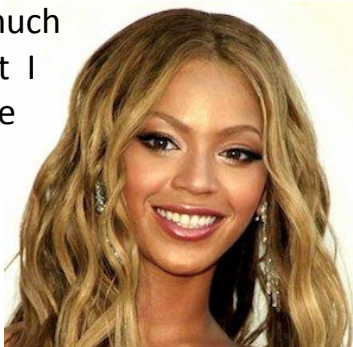




44 is the number of derangements of 5 objects

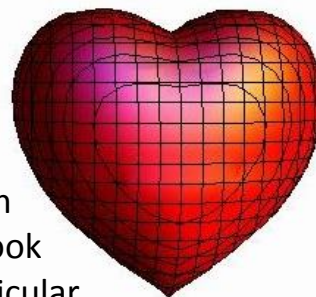
News

Welcome to this year's Valentine's Day maths newsletter. Beyoncé once said, "I don't know much about algebra, but I know one plus one equals two, and it's me and you." Here at the maths newsletter, we are not very impressed by this, and don't really understand why anybody would want to admit to somebody they liked that they don't know much about algebra. Would she be so quick to tell them if she didn't know the alphabet? Also, if you want to impress somebody by using maths, you can probably do better than telling them that you know one plus one equals two.¹ Hopefully this newsletter will give you some better ideas than this.²



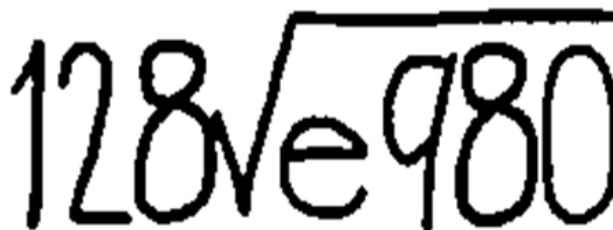
More Ideas

If you're looking for something more visual, why not ask the person you love to download some graph plotting software, and get them to plot the equation of a three dimensional heart. There are lots of heart equations on the internet, if you look for them.³ This particular one has the strange equation



$$320 \left(-x^2 z^2 - \frac{9y^2 z^3}{80} + \left(x^2 + \frac{9y^2}{4} + z^2 - 1 \right)^3 \right) = 0$$

If you would prefer a two dimensional version instead, that's a bit simpler, you could try plotting something like $(x^2 + y^2 - 1)^3 = x^2 y^3$. Why not make your own Valentine's Day card with one of these graphs on the front? Alternatively, write down the following number and tell the person you love to slowly cover up the number, moving from top to bottom.



The Love Inequality

Perhaps you could send them a card with this inequality written in it. Just ask them to rearrange it to make i the subject.

$$9x - 7i > 3(3x - 7u)$$

$$9x - 7i > 9x - 21u$$

$$-7i > -21u$$

$$i < 3u \quad \heartsuit$$

As you can see, this is already way better than Beyoncé's frankly dismal effort.

Maths Quote

"Maths is like love – a simple idea, but it can get complicated."

Unfortunately, at Camp Hill, we don't run a weekly love workshop, but we do run a lovely weekly maths workshop, every Monday lunchtime, in room 13.

1. What about "Euler said $V - E + F = 2$, and it's me and you" or " $-2e^{i\pi} = 2$, and it's me and you"? It's not hard.
 2. Beyoncé's maths teachers were unavailable for comment, but we're sure they are very proud of her.
 3. They're still there, even if you don't look for them. This is not some weird quantum mechanics type thing.

The Year 10 Big Maths Quiz 2018

One thing we love is telling you about all the mathematical things our students have been doing. On Wednesday 7th February, fifteen year 10 students went to the University of Birmingham to take part in their annual Big Maths Quiz.



This is a competition that we won last year, and so the pressure was on our students from the outset as, if we didn't win, we would have to give back the big trophy that we've got so used to seeing in the school trophy cabinet. We arrived at the university at about 9:30 am, and were immediately given a tour of the campus by an enthusiastic student ambassador. Shortly after 10 o'clock we returned to the Great Hall, where the girls got into their teams and mentally prepared themselves for the day ahead of them. The first thing we noticed was how many teams there were. We think there were around eighty in total. The morning session consisted of three rounds; one of which was the specialist round about the mathematician Maryam Mirzakhani. By the end of the morning, two of our four teams had scored maximum points, with the other two teams very close behind. After a short lunch break, there were only two more rounds, and I am pleased to be able to announce that we ended the day in first place. The winning team were Elin Isaac, Deepthi Kondahally, Anila Peri, and Abhirami Ravindranath. There were, of course, prizes to be awarded and photographs to be taken and, because of this, we returned to our pick up point to find that our coach had left without us, and everybody had to phone their parents to be picked up, except for Mr Taylor, who phoned Mr Bettison. You'll be pleased to know that the trophy is now safely back in our school trophy cabinet.



The full list of students who competed is (from left to right in the top photo) Jessica Mackie, Rhea Sibal, Salma Berriche, Poppie Rogers, Shreya Gopisri, Abhirami Ravindranath, Saloni Shastri, Elin Isaac, Elizabeth Varaksina, Anila Peri, Deepthi Kondahally, Maya Patel, Shreya Shyam, Kanakdurga Nanda, the enthusiastic student ambassador, and Hazel Cooper. (The ambassador did not compete.)