King Edward VI Camp Hill School for Girls
Maths Department Newsletter

News

We are pleased to be able to tell you that both of the year 9 teams who entered the Edge Hill University maths competition have made it through to the final round, which takes places on Wednesday 5th July. If it's the same as last year, this means that both teams have made it into the last 24, out of several hundred that originally entered. Last year, our team finished 3rd overall, but learned some valuable lessons along the way, such as it's probably a good idea to bake the judges a cake (like last year's winning team did). Hopefully, this year, our teams won't be forgotten about and left sitting in a classroom while the prizegiving ceremony takes place, only to accidentally discover this when someone needs to go to the toilet and hears lots of clapping coming from the lecture theatre. We'll let you know how it goes ☺
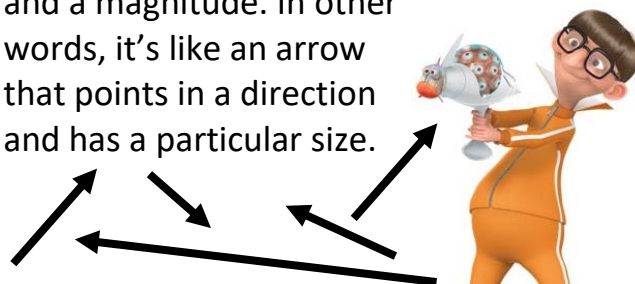
Puzzle

$$\frac{9999^{999} - 9999^{998}}{9999^{998}} = ?$$

Which is the correct answer?

**A** 9998   **B** 10000

C 1   **D** 9999

Maths Word

A **vector** is a quantity, having a direction and a magnitude. In other words, it's like an arrow that points in a direction and has a particular size.

'Vector' is a Latin word, meaning 'carrier'. Vectors are used in maths to describe anything that has a size and a direction; for example, if a shape is translated, we usually describe this transformation using a **column vector**. Vectors are also used for describing things like velocities and forces. They can also be very useful for solving tricky geometry problems.
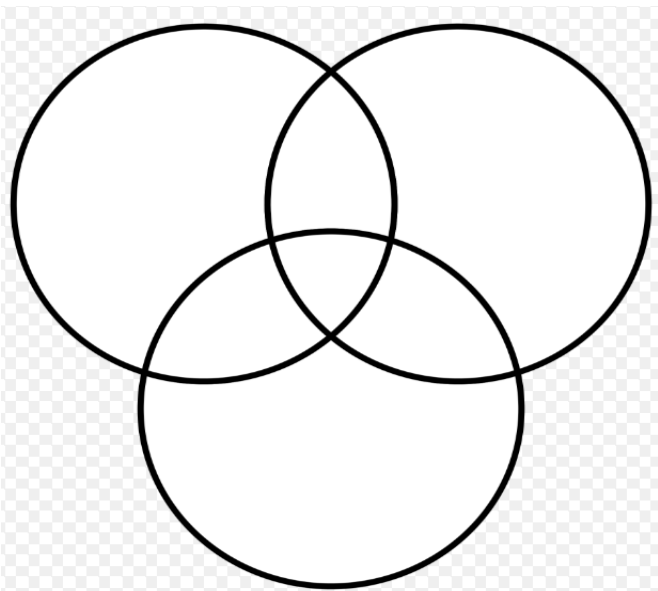
Joke

MATHS

The only place where people buy 64 watermelons and no one wonders why...
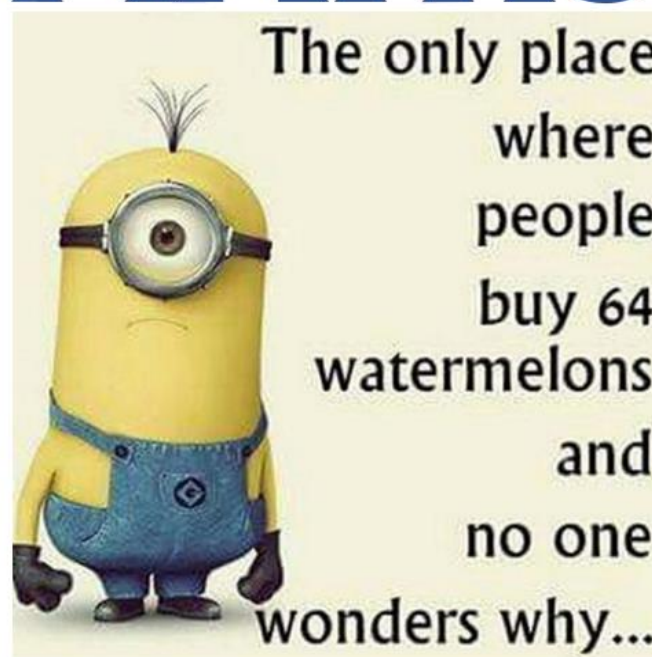
Puzzle

Place the numbers 8, 9, 10, 11, 12, 13, 14, 15, 16, 17, 18, 19 and 20 into the following diagram, so that the total of the numbers in each circle is the same. No region can be left empty, and only one number is allowed to be placed in the middle section.

Which number did you put in the middle? Are there any numbers which you could not have put in the middle?

Did you know?

Swedish statistician Hans Rosling used to like to say, "Did you know that most people have more than the average number of legs?"

This is because the vast majority of people have two legs. But some people have no legs or one leg. So the average number of legs will be just slightly less than 2, meaning most people have an above average number of legs. Why not amaze somebody at home by telling them this interesting fact?

Random Numbers

Random numbers are interesting things. I saw a magician recently and he used the following grid to generate a random number. This is how you do it:

Circle any number in the grid, then cross out every other number in the same row as the number you have circled. Also cross out every other number in the same column as the number you have circled.

1	2	3	4
5	6	7	8
9	10	11	12
13	14	15	16

Repeat this process three more times (you are not allowed to circle a number that has been crossed out), so that you have circled four numbers in the grid.

Add up the four circled numbers and you will have generated a random number; you might have something like 34, for example.[1]

Don't Forget

If you plan to sign up for the Southampton University SETI Cipher Challenge, this has to be done by Friday 30th June. Also, let me know any interesting mathematical facts you can find about the number 35 for the next newsletter. I'm also running out of good maths jokes...[2]

1. If you don't get 34, you have made a mistake. Can you work out why you should always get 34?
2. Although some people say that this actually happened a long time ago.