News

As it's GCSE season again, I thought it might be fun to start this newsletter by remembering the notorious *Hannah's Sweets* question from last year's Edexcel Maths exam. Quite a number of people thought it was a really difficult question, and all over the country frustrated students were angrily tweeting things like how it took four accountants with maths degrees who worked with their mother two hours to work it out, and other things like this…

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Hannah eats some sweets.
Calculate the circumference of Jupiter using your tracing paper and a rusty spoon. (5 marks) #EdexcelMaths

As you can probably guess, the question was actually quite easy. If you've not seen it before, here it is.

There are n sweets in a bag.
6 of the sweets are orange.
The rest of the sweets are yellow.

Hannah takes at random a sweet from the bag.
She eats the sweet.

Hannah then takes at random another sweet from the bag.
She eats the sweet.

The probability that Hannah eats two orange sweets is $\dfrac{1}{3}$

(a) Show that $n^2 - n - 90 = 0$

Part (b) asks you to solve the equation to work out how many sweets there were.[1]

Maths Word

A 'coefficient' is a number which is multiplied by a variable in an algebraic expression. For example, in

$$3x^2 + 5x$$

the coefficients are 3 and 5. The word was first used in this way in the 17th century. It comes from the Latin 'com' (together) and 'efficient' (accomplishing) and it means something like 'working together to produce a result'.

Competition Winners

Several Camp Hill girls have won prizes in this year's Southampton University Maths Challenge[2]. In the junior category, Kanakdurga Nanda won 1st prize and Salma Berriche won 3rd prize[3]. Shreya Shyam and Teesta Maulik were also awarded distinctions for their entries. In the senior category, Emma Hillier won 2nd prize.

Joke

Cool round table! Who built it?

Sir Cumference.

1. For some reason, most websites have cropped part (b), probably because it was part (a) that most people seemed to dislike so much.
2. This was the competition advertised in newsletter 10.
3. That's nationally, out of everybody in the whole country who entered the competition!

David Walliams

If any of you have been reading the new book by David Walliams, *The World's Worst Children*, you may have noticed the chapter about maths, called *'Brian Wong, who was never, ever wrong'*. It's a story about infinity, which is interesting enough by itself, but what caught our eye was an equation on the second page of the story, that looks like this…
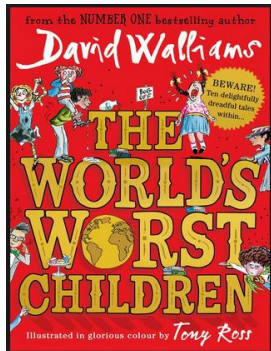
$$\frac{3}{4}\sqrt{3} + 24\int_0^{1/4}\sqrt{x-x^2}\,dx = ?$$

We're a little bit puzzled by where this equation might have come from. At the bottom of the page it says that the solution to the equation is π, but we think that this is just a joke (as it's a book of funny stories[4]). If any of you have any theories on why David Walliams (or the illustrator, Tony Ross) might have chosen this equation, please let us know.

UKMT Qualifiers

Kanakdurga Nanda and Naina Gupta have both qualified for the Junior Maths Olympiad. Qualifiers for the Kangaroo are Hazel Cooper, Zara Rahim, Rhea Sibal, Salma Berriche, Shreya Gopisri, Sarah Rigg, Maya Patel, Iris Brill, Anila Peri, Elin Isaac, Esther Cha, Si Feng, Roxanne Efa-Quayson, Aleeza Butt, Lauren Lownes, Aamina Rizvi, Manya Sonsati, Maleeha Ahmad, Teesta Maulik, and Mushkan Pradhan.

Brilliant.org

If you don't already look at maths problems on the website brilliant.org (some of their puzzles are for paying members only, but there are a lot that are free) then perhaps you should take a look on there and see if you like it. The puzzles range in difficulty from very easy to needing a maths degree to solve. This is one of their puzzles of the week. Let us know if you solve it.
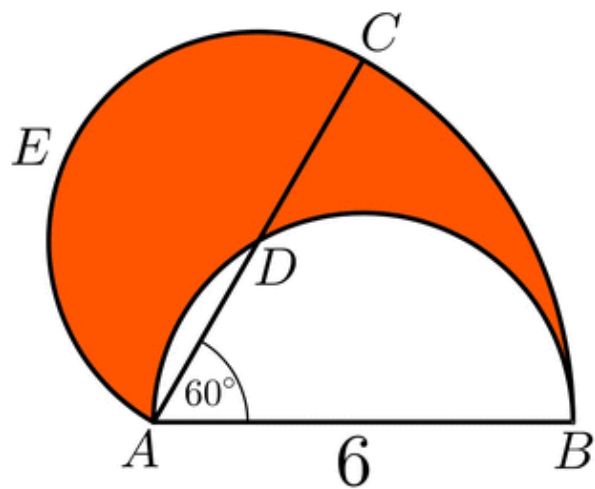
Semicircle *ADB* with diameter 6 is rotated 60° anticlockwise at the point *A* to form another semicircle *AEC* with diameter *AC*. If the area of the shaded region can be expressed as $k\pi$, find k.

If you think that puzzle is a bit difficult, there are lots of easier ones on their website you can try. I just thought that most of you who are intelligent, sophisticated and generally cultured enough to read the maths newsletter would probably prefer something that was a bit of a challenge.

Don't forget to let us know if you have anything to go in the next newsletter ☺

4. And we've checked it. It doesn't seem to be anywhere near to π.