King Edward VI Camp Hill School for Girls

Maths Department Newsletter

20th March 2020

The Pythagoreans associated a 56-sided polygon with a creature called Typhon

News

Hello! It's been a while since the last maths newsletter, because we seem to have been extra busy lately, with all that 'going to school' stuff that we used to do.[1] But here we are, and suddenly we're not at school anymore and suddenly we realise that rather than being happy about not having maths lessons, we're actually quite sad about it and we wish that there was some way that we could keep on doing maths, in that fun and yet also strangely educational way that we've all become so accustomed to at Camp Hill. Well, if that's how you're feeling, I have some good news. While we're off school I'll be sending out a maths newsletter every week, filled with puzzles and generally fun mathsy[2] things for you to think about. If you solve any of the puzzles, please email your teacher with the answers and you can get some house points when everything gets back to normal. The reason there is a picture of Medusa is because the 56-sided polygon[3] is associated with a creature from Greek mythology called a Typhon. Medusa is also a creature from Greek mythology. That's the only connection.[4] And I know that in the past the number fact has always been mathematical rather than cultural, but the world is different now and so is the maths newsletter.

MEDUSA

So you're all familiar with BIDMAS[5], which stands for Brackets, Indices, Division, Multiplication, Addition and Subtraction – basically telling you the order in which to calculate things when you have an ambiguous calculation to work out, like $2 + 3 \times 4$, as long as we remember that multiplication and division are treated as equally important, and if we have several of those we just work from left to right. The same is true for addition and subtraction. For example, $4 - 3 + 1 = 2$, not zero. We don't add the 3 and 1 first. What's not obvious is that in situations containing only multiplication and division, or only addition and subtraction, if we do all the divisions before the multiplications, or all the subtractions before the additions, we will always get the same answer as if we just worked from left to right.[6] This means that BIDMSA would really be better than BIDMAS but, unfortunately, it's difficult to pronounce. It has been suggested[7] that we use the acronym MEDUSA instead, which stands for

Mabano (*brackets* in Swahili)
Exponentiation
Division
Ukubuyabuyelela (*multiplication* in Zulu)
Subtraction
Addition

What do you think?

1. Apparently, back in the days before viruses were invented, children used to go to an actual physical school, and have lessons in an actual classroom. Can you believe that? It sounds really old-fashioned now, I know.
2. Yes, that is a word. 3. Can you find out the proper name for a 56-sided polygon? 4. Almost.
5. Sometimes called BODMAS or PEMDAS etc. 6. You might need to really think about this.
7. by Adam Townsend and Matthew Scroggs in *Chalkdust* magazine, January 2017.

Maths Fail

What's wrong with the following maths question?

An orchestra of 120 musicians takes 40 minutes to play Beethoven's 9th Symphony. How long would it take for 60 musicians to play the symphony?

Calculator Weirdness

Here's something for you to think about. Can you explain what's going on in this picture? If you type 8 ÷ 2(2+2) you get 1, but if you put the multiplication sign in between the 2 and the first bracket and type 8 ÷ 2×(2+2) you get 16. Why might this be? What rule is the calculator following here?[8]

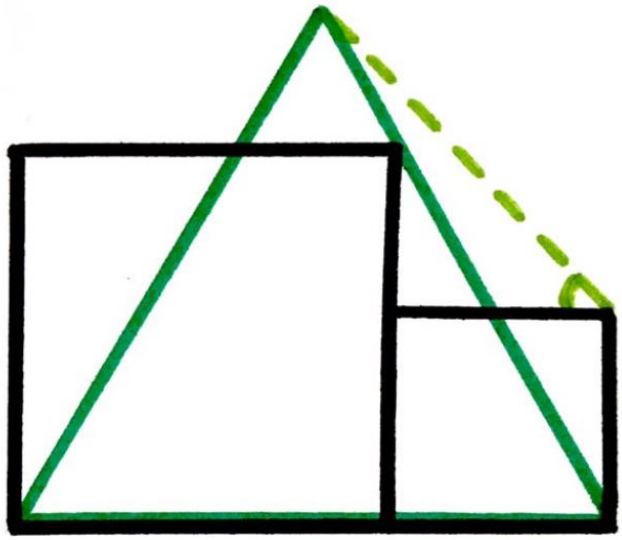
Speed, Distance and Time

Year 8 have recently been studying speed, distance and time. Here's an interesting puzzle related to this topic.[9]

It's 25 miles from work to my house.[10] I usually drive to work at an average speed of 40 mph but today the traffic slowed me down to an average speed of 20 mph. How fast do I need to drive on the way home to get my total average speed back up to 40 mph?

A Geometry Puzzle

Here's a puzzle from Catriona Shearer (@Cshearer41). Two squares and an equilateral triangle. What's the angle?



Joke

Interviewer: It says here you're extremely fast at maths. What's 30×17?
Me: 47
Interviewer: That's not even close.
Me: Yeah, but it was quick.

The Next Newsletter

Please let me know if you have any maths puzzles, jokes, memes, fails, or interesting facts that I can put into the next maths newsletter. Just email them all to m.taylor@kechg.org.uk

8. This is not a trick, by the way.
9. If you're in year 7, all you have to know to be able to solve this puzzle is that speed = distance ÷ time
10. This puzzle was written back in the days when everybody used to go to work. It feels a bit dated now.