King Edward VI Camp Hill School for Girls
Maths Department Newsletter

All powers of 25 end with 25

News

Since the last newsletter, a few things have happened. Mrs Palmer has become a granny for the first time, the Camp Hill code breaking team have successfully cracked the first two codes, and the Bank of England have announced a new 12-sided pound coin. I'm sure you'll agree, these are all quite exciting things. At this point you're probably wondering what Mrs Palmer's grandchild is called, and what the adjective meaning 12-sided is. Well, the answer to one of the questions is 'We're not sure, but if hexagons are hexagonal and octagons are octagonal, then a dodecagon is probably dodecagonal, but that sounds a bit weird', and the answer to the other is 'Elijah'. We'll leave you to work out which answer goes with which question.[1]

Don't Forget...

Maths Club is on Wednesdays in room 26 at 1 o'clock. Why not come along and join in? Also, if you're ever stuck with your maths homework, come and get help at maths workshop, any Monday lunchtime, in Room 13.

Finally, if you signed up for the code breaking, don't forget that a new code is published every Thursday at 3 p.m. They will be getting difficult soon and we're going to need your help!

Maths Word

An 'ellipse' is a curve surrounding two focal points, such that the sum of the distances to the two focal points is constant for every point on the curve.
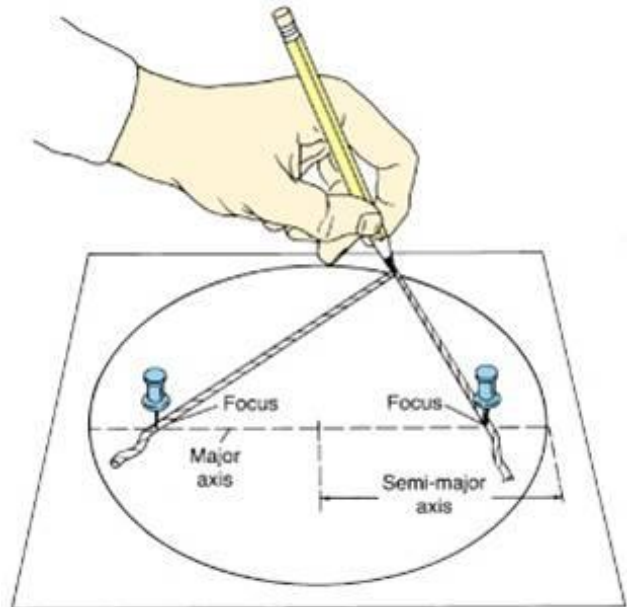
It's basically a neatly squashed[2] circle, and you can construct one using the method shown in the diagram above. Planets travel around the sun in ellipses, which is one reason why they're interesting.

Joke

The World's Most Accurate Pie Chart

1. Mrs Palmer's grandson is named Elijah.
2. 'neatly squashed' means squashed in very mathematically precise and symmetrical kind of way; not the way you would squash something if, say, you were to sit on it.

Something Silly

Apparently, BT Infinity is recommended by only 9 out of every 10000000 people.

Recommended by 9 out of 10⁷

A Big Long Sum

If you have a spare minute or two, you might want to work out the answer to this big sum and tell your maths teacher what it is. It's part of a competition we're taking part in, and we just want to make sure we haven't made a mistake…

1-6-3-1-5-4+3-1-4-1+3-1-4-3-1+3-1-5-5-1
+3-6-2-10+3-6-5+3-7-3-5-7+3-7-3-6-3+3
-8-5-7-3-6-4+4-1-4-3-1-4-3-1+5+5-7-3-5
-7+6-4-7+6-5-10+6-7-3-6-3+6-8-3-7-3-6
-4+7-5-8+8-2-2+8-8-4-7-3-6+8-9+9+10-7

A Logic Puzzle

Here is a puzzle from the famous logician Ray Smullyan.

You are asked to make a statement about something (anything!).
If the statement is true, you will receive one of two prizes.
If the statement is false, you will receive no prize.

You could easily win a prize just by saying something like "2 + 2 = 4",
but what if, out of the two prizes, you know you want a specific one.
(Let's call the prizes 'Prize 1' and 'Prize 2', and the one that you want is Prize 1.)
Which one of the following statements, if you make it, will guarantee you get Prize 1?

A "You will give me Prize 1"   B "You will not give me Prize 1"
C "You will give me Prize 2"   D "You will not give me Prize 2"
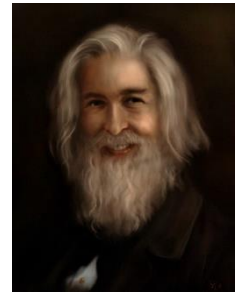
A Puzzle about Numbers

Replace the question marks with the whole numbers from 5 to 9 inclusive (no repeats!)

? and ? are numbers with first digit 2, that add to make 50.
3 and ? are the prime factors of ?
? is the square of ?
? and ? are twin primes.
The number of Archimedean solids is ?, which is half of ?
? is both an odd number and a cube.
? > ? are both one more than a Fibonacci number, and one less than a triangular number.
? and ? and ? and ? multiply to make 73370.
? and ? have an HCF that is one less than ?
? + ? = 20, and their LCM is ?
? × ? is 1 less than an odd square.