



$$3 + 5 + 7 + 11 + 13 = 3 \times 13 = 39$$

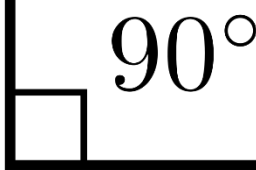
### News

It's the middle of October and the Southampton University code breaking competition, along with the Ritangle competition, have both started. So far we are doing well in both of them. Since the last newsletter, a few things have happened, like we've had a palindromic date 7-10-2017 and a few days after that, on the 10<sup>th</sup>, it was Ada Lovelace Day, which is the day every year that we pause to remember the work done by the famous mathematician and 'first computer programmer' Ada Lovelace.<sup>1</sup>



### Maths Word

People sometimes wonder why a right angle is called a right angle. Most maths teachers have, at some point, been asked if there is such a thing as a left angle. The answer to this question is that it's called 'right', in the sense of standing 'upright'. It has nothing to do with left and right.



### Did You Know?

Ada Lovelace was the only legitimate child of the famous poet Lord Byron.

### Puzzle

What is special about the following number?

8 5 4 9 1 7 6 3 2 0

There are, in fact, two things that are special about this number. One of them is a property that only this number has. Can you work out what it is?<sup>2</sup>

### Maths Quote

"I never am really satisfied that I understand anything; because, understand it well as I may, my comprehension can only be an infinitesimal fraction of all I want to understand." **Ada Lovelace**

If your understanding of maths this year is only a fraction of all that you want to understand (even if it's a fairly big fraction), why not come along to maths workshop? It takes place every Monday lunchtime in room 13. Also, if you think you might like a personal maths mentor to help you this year, please let your maths teacher know ☺

### Joke

What do you call an irrational snake?  
**A pi-thon.**



This week's joke was provided by Mr. Brown. If you know any maths jokes, please let us know.

1. If we remember to, that is. I usually forget, then remember a few weeks later.

2. As usual, please tell your maths teacher if you work out the answers to any of the puzzles in the newsletter.

## Puzzle

Two competing shops have a suit for sale, and both are asking the same price.

Both shops then have a sale; the first shop drops the price of the suit by £18, the second shop drops it by 18%.



Random man in a suit

The following week, the first shop drops the price of the suit by a further 21%, while the first shop takes off a further £21.

After this second round of deductions, the two shops are again offering the suit at the same price.

What was the original price of the suit in pounds?

## Answers

Here are the answers to the puzzles from newsletter 38.

The answer to Mrs Palmer's puzzle was

$$4 + 5 = 1 + 2 + 6 \text{ and } 4^2 + 5^2 = 1^2 + 2^2 + 6^2.$$

The way to make 100 from the digits 1 to 9 in order, using the fewest signs is

$$123 - 45 - 67 + 89 = 100$$

The answers to the Maths Challenge questions were

1. C      2. D      3. E      4. D

If you enjoyed these questions, you can find lots more on the UKMT website:  
<https://www.ukmt.org.uk/team-challenges/>

## Sequences

Years 7 and 9 have recently been studying different kinds of sequences, so here are a few sequences. Some of them have mathematical rules and some do not. For each one, can you work out what the pattern is and what comes next?

3 7 11 15 19 ?

2 10 50 250 ?

1 1 2 3 5 8 ?

2 3 5 7 11 13 ?

1 13 28 46 ?

111 55 27 ?

6 13 9 11 13 8 18 ?

1 2 2 3 4 10 37 ?

52 10 42 32 10 22 ?

1 5 9 15 ?

3 3 5 4 4 3 5 5 4 3 ?

11 12 20 30 80 ?

If you have worked out all of those, then try this:

What is the next letter in this sequence?

W I T N L I T ?

Have a good half term break 😊