MindBenders 1

T-shirt Teaser

Scruffy Sam has put on his T-shirt. Unfortunately it is inside out and back to front. Normally the washing label is on the inside of the left sleeve. Where is it now?

Number Anagram

Claire has put some letter blocks together to make the following sum:

ONE + TWELVE = THIRTEEN

Nicola uses all these blocks but rearranges some of them to get a different sum, which is also correct. Then Claire replaces the I with the E and inserts another + block. She rearranges the blocks again and once more the result is correct.
Can you find the two new versions?

Can You Do It?

You have a cylindrical can of the sort that baked beans are sold in. You want to fill it exactly one quarter full of water but you have no measuring instrument and the can is not graduated in any way (though you can scratch it yourself if you wish).
How should you proceed?

Polar Bearings

You are travelling to the North Pole by sled, but your huskies are too enthusiastic and you overshoot the Pole slightly. Will east be to your left or right?

A Minor Case

Sherlock Holmes was investigating what appeared to be a very minor break-in, as a favour to a friend. "Even you, my dear Watson", he began, "can solve this case by attentively observing the rather scuffed footprints that proceed through the scullery door, and along the hall, and disappear into the room on the left. What do you see?"

"Er they're muddy?" ventured Watson.
"Think logically Watson!" urged Holmes. "They proceed right foot, right foot, left foot, left foot, right, right, left, left and so on. What do you see now?"

At last he understood. What had Watson realized?

Fun Run Go Slow

This is Angela's first time in the three-mile Fun Run, and she is finding it a little tough. In fact she has only just completed the first two miles, and as she looks at her watch she says to herself (breathlessly), I'm only averaging four miles an hour. Oh dear, I wanted to average six miles per hour for this run - I must go a bit faster.

How fast will she have to run the final mile in order to get her average speed for the whole Fun Run up to six miles per hour?

Name Prediction

Jane Higgins was walking down the high street when she bumped into an old friend. "Hello, I haven't seen or heard from you since graduation back in 1982!" said Jane, "what's happened to you?"

"Well, I got married in 1989 to somebody you wouldn't know. This is our son", said the friend who was holding hands with a little boy.
"Hello and what's your name?" said Jane to the boy.
"It's the same as Daddy's".
"Ah so it's Peter is it?" said Jane

How did Jane know?

Mum's Secret

How old are you, Mum?
I'm 35
But you've been 35 for years
Yes, but this time it's true. I'm just ignoring the weekends.
How old is Mum?

Turn Four Into Five

It is not too difficult to get from TWO to SIX by changing one letter at a time, each time making a proper word, like this:

TWO TOO TOP TIP SIP SIX

So TWO to SIX can be done in five steps. FOUR to FIVE takes longer. How many steps do you need to turn FOUR into FIVE? Can you do it with every letter changing at least once, including the F?
How about turning ONE into TWO?
And as a final very tough challenge, can you turn SEVEN into EIGHT? (Our solution has the rare word REVET in the middle.)

Magic Beans

"So you don't believe that I can use telepathy to count things?" said Uncle Norman. "OK, pick up any number of beans in your left hand (don't tell me how many!) and pick up the same number in your right hand. Now take four from your left hand and put them in your right hand. Count how many there are remaining in your left hand, put them back in the jar and put the same number from your right hand back in the jar. Now pick five more beans up in your left hand. I can now tell you that you have a total of" ... (Uncle Norman concentrated hard) ..."13 beans in your hands."

He was right!
How did Uncle Norman pull off this amazing bit of psychic counting?

Christmas Card Mystery

Last Christmas the Crown and Greyhound pub was selling its own cards. Cards were sold separately and, in theory, you could ask for whatever number of cards you wanted. Among other combinations, many customers bought multiples of 5 cards: a lot bought 5, some bought 15 and a few bought 20. What seemed odd, though is that nobody at all bought ten cards. Can you think of a simple explanation for this, other than coincidence.

True or False

In the box below, which of the statements is true, and which is false?

1. The number of false statements in this box is one
2. The number of false statements in this box is two
3. The number of false statements in this box is three
4. The number of false statements in this box is four

Fair Prizes

Four girls at the back of the classroom were comparing the numbers of prizes they had won at the fair. "I've got one more than you", said Bernice. "I've got two more than you", said one girl to another. "I've got three more than you" said one to another. "I've got four more than you" , "I've got five more than you", "I've got six more than you", rang their excited voices, but we don't know who was talking to whom.

If they had won a total of 27 prizes, how many did Bernice win?

By-Election Blues

"What can you tell me about our party's potential candidates for the by-election, Peter?" asked Humphrey Dimpsworth, the local party chairman, counting up the number on the list.
"Well, I have good news and bad news. The good news is that I've had some research done to see if they meet our usual criteria, and we've discovered that eight of them are happily married at the moment, seven of them were not involved in that council scandal four years ago, and six of them have never been involved in any lunatic fringe activities."
"Excellent, lets see, that means at the very minimum one of the candidates must have all of these virtues. What's the bad news?"
"Er well, you're right, but unfortunately there is only one candidate who has all three virtues - and that is your old sparring partner Henrietta Prigg."

How many candidates were there in total?

Coloured Hats

Professor Pots has set a tough challenge for his four brightest students, who are sat facing each other. He says "I have seven hats here, four black and three white. I will blindfold you and then give you each a hat. I will then remove the blindfolds and ask each of you in turn if you are able to work out what is the colour of your hat."

He does this. Each student thinks very hard before he speaks.

And this is what each one says:

First student: "I don't know."

Second student: "I don't know either."

Third student: "Nor do I."

Before his blindfold is removed, the fourth student announces the colour of his hat.

What is it and how does he know?

MindBenders 1 – Solution

T-shirt Teaser

The label is now on the outside of his left sleeve

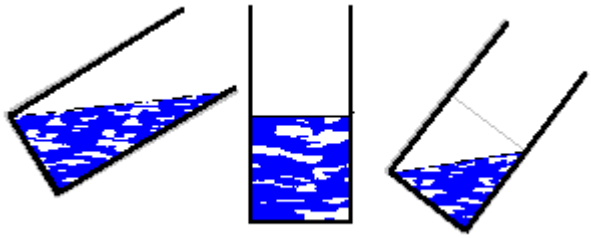
Number Anagram

TWO + ELEVEN = THIRTEEN is Nicola's rearranged sum

TWO + ELEVEN = THREE + TEN is Claire's reshuffle

Can You Do It?

Fill the can to over half full, and tip it so that the water runs out until it reaches just from the lip of the can to the edge of the base, as in the first figure.
Now the can is one half full. Tilt the can upright and mark it inside to show how far the water comes. Finally, tip out the water a bit at a time, until when tilted, the water goes from the mark you scratched to the edge of the bottom, as in the third figure.



Polar Bearings

To your left. East is to the right when you travel North, but if you are travelling south (which you must be doing if you are leaving the North Pole) east is to the left.

A Minor Case

Watson realized that only children proceed right, right, left, left, right, right ... and only when they are skipping along, which also explains why the footprints are rather scuffed. So the culprit was a child, no doubt one of the family playing an illegal visit to the pantry.

Fun Run Go slow

It does not matter how fast she runs - even a world record sprint would not increase her average speed to six miles per hour. This is because the Fun Run is three miles long, so if her overall speed was six miles per hour she would do the whole run in 30 minutes. But she has already taken 30 minutes to run the first two miles at four miles an hour, so she would have to run the final mile in zero minutes! (This is a good illustration of the fact that averages can be quite complicated. You usually can't average an average.)

Name Prediction

The friend is a man called Peter.
For some reason most people assume that Jane's friend must be a woman, even though there is nothing to indicate this is in the puzzle, and even though it is common for college friends to be of the opposite sex. Interestingly, people have the same difficulty when all the sexes in the puzzle are reversed.

Mum's Secret

Mum is 49.

Weekends account for two sevenths of her age.

Turn Four Into Five

FOUR into FIVE: it can be done in seven steps:
FOUR POUR POUT PORT PORE FORE FIRE FIVE
ONE into TWO: using common words it can be done in ten steps:
ONE ODE ODD ADD AID LID LIP TIP TOP TOO TWO
SEVEN into EIGHT: it is easier to solve this by working backwards from EIGHT, since this is the trickier end. Although lots of common words like MIGHT and FIGHT could come next, they don't seem to lead anywhere. The word that does is BIGHT. Here is our solution in 13 steps:
EIGHT BIGHT BIGOT BEGOT BEGET BESET RESET REVET RIVET RIVER RAVER SAVER SEVER SEVEN

Magic Beans

Uncle Norman knew that whatever number of beans were picked up, the number would always finish up at 13 (eight in the right hand and five in the left).
For example, if you pick up 15 to start with:

Bingo!

	Left hand	Right hand	Total
Start			
Four across			
Return left to jar			
Same number from right jar			
Pick up five			

True or False

Since all of the statements contradict each other, three of them must be false. Therefore statement number three is true and the others are false.

Christmas Card Mystery

The most likely explanation is that there was a special deal: buy ten cards and get one (or two) free. This means that nobody would buy ten since they might as well take the extra two for the same price. In fact this is a true story: the deal was 50p per card or 12 for £5. So, while buying 5, 15 or 20 cards was cheaper than buying 6, 16 or 21, buying ten was no cheaper than buying 11.

Fair Prizes

She won five prizes

There were only four girls, and six differences between them which were given. Therefore every possible difference between the four girls was named and we are looking for four numbers whose six differences are 1, 2, 3, 4, 5 and 6.

The differences between numbers don't change if all the numbers are increased or decreased by the same amount, so we can start by assuming that the first number is one, in which case the largest number (to give a maximum difference of six), must be seven.

We have to fill in the two middle numbers so that the six differences are the numbers 1 to 6. There are just two ways to do this:

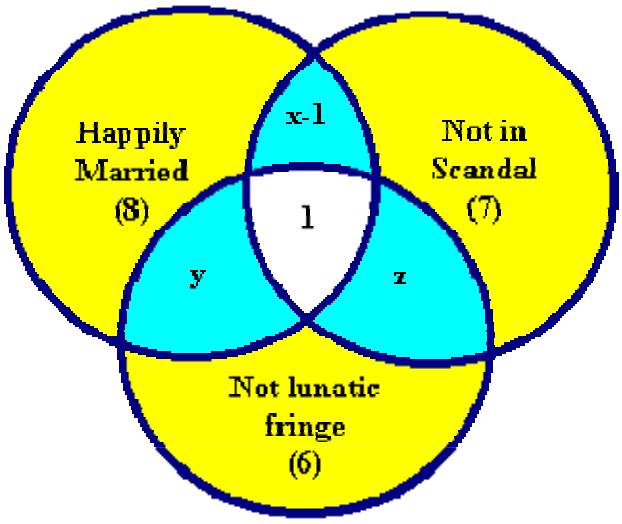
1 2 5 7 or 1 3 6 7

The total number of prizes won in the first case is 1+2+5+7=15, which can be raised to 27 if we add three prizes to each girl's total, making their totals 4, 5, 8 and 10. The total of the second set is, however, 17, which cannot be raised to 27 by increasing each number by the same amount.

Therefore the number of prizes won by each girl is 4, 5, 8, 10 and Bernice, who won one more than one of the other girls, won five prizes.

By-Election Blues

There were ten candidates in total. This can be worked out with a diagram showing the candidates who are happily married and those who weren't involved in the council scandal. There are X candidates who are happily married and were not involved in the scandal. We know that only one of these X people was not a 'lunatic fringer' (Henrietta Prigg), so the five other non-lunatics must be Y+Z. (If Y+Z added up to more than 5, then there would be no need for the sixth to be in X either. So the total number of candidates is 8 + Z (=Y+7) The only numbers that fit are Z=2, Y=3, which means there were ten candidates in total.



Coloured Hats

He says: "I am wearing a black hat."
The fourth student reasons as follows: "Suppose my hat is white. The first three students have already tried to work out the colour of their hats and failed. If number two could see white hats on number three and me, then he could deduce his hat must be black (because if it was white, number one would have known his hat was black). But number two said nothing, so if mine was white number three would know that his hat was black. But since number three also said nothing, the only explanation is that I must be wearing a black hat."