

MATHS CHALLENGE 1



RALPH: Hello and welcome to **Maths Challenge** - the quiz that aims to massage your mental muscle and turn you all into mental maths masterminds. Before we start make sure you've got a pencil and paper to write down the answers.

OK, now you have sorted that out, we can get going, just as soon as I've introduced you to Matrix, my mathematical mastermind. Say hello, Matrix.

MATRIX: Hello, Matrix!

RALPH: No, no, I meant... Oh, never mind. Now, Matrix, before we start tell us what is today's mathematical word.

MATRIX: **Product.** Product is another way of saying 'multiply'. So the product of six and three means 'six multiplied by three.'

RALPH: Which is?

MATRIX: 18!

RALPH: OK, so let's start the quiz.

Round 1. Beat the clock!

The questions come fast in this round so you'll need to think quickly. And here are the rules. There are eight questions and you will have two seconds to think and write down your answer. You have to work it out in your head. Listen carefully because question one contains today's mathematical word.

MATRIX: Product.

RALPH: Right, here we go with Question 1. What is the product of 7 and 8? What is the product of 7 and 8?

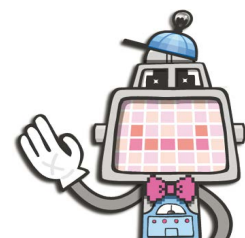
Question 2. How many minutes in half an hour? Half an hour is made up of how many minutes?

Question 3. What is 30 minus half a dozen? 30 minus half a dozen?

Question 4. How many days are there in May? How many days in May?

Question 5. How many 20p coins make £3? How many 20p coins does it take to make £3?

Question 6. What is a half as a decimal? A half as a decimal - what is it?



Question 7. How many centimetres are there in a quarter of a metre? A quarter of a meter - how many centimetres?

And the final question of the round - number 8. What is half of 50? Half of 50?

That's it! Time's up. No more writing down because here come the answers. Ready Matrix?

RALPH: Question 1.
MATRIX: Answer: 56.

RALPH: Question 2.
MATRIX: Answer: 30.

RALPH: Question 3.
MATRIX: Answer: 24.

RALPH: Question 4.
MATRIX: Answer: 31.

RALPH: Question 5.
MATRIX: Answer: 15.

RALPH: Question 6.
MATRIX: Answer: 0.5.

RALPH: Question 7.
MATRIX: Answer: 25.

RALPH: Question 8.
MATRIX: Answer: 25.

RALPH: There we are then. You get one point for every answer you got right. Count up your scores. I wonder how many of you got them all right. Don't worry because there are still plenty of points to collect, so on to the next round.

MATRIX: Which is?

Round 2. All the fun of the fair!

Picture the scene in your mind. There are lots of people and lots of exciting rides to try out and you can't wait to have a go. But first you need to sort out your money so you go through all your pockets to see how much you have got.

Kelly has £4 exactly but Matthew has got £5 more than her.

So here's the question. What I want to know is how much money they've got altogether. Listen again: Kelly has £4 and Matthew has £5 more. How much money have they got altogether? Work it out in your head. You've got five seconds starting now.



Time's up! Let's check with Matrix to see if you have the right answer.

MATRIX: Kelly has £4 and Mathew has £5 more, making £9. So £4 + £9 means a grand total of £13 altogether.

RALPH: Award yourself five points if you've got the right answer. No points at all if you're wrong.

Right, now you've got your money sorted out you can get started on the rides. So you have a good look around and find there's a brand new super-scary ride just opened today and it's called 'Ghosts in space!'

MATRIX: Ooooh that sounds scary, can I go on that?

RALPH: No, you'll frighten the ghosts. Kelly and Matthew have decided to spend all their money on that. Now listen carefully. To start off there are nine people on the ghost train. After the first ride, four of the nine riders get off. But three more get on. Four get off and three get on. How many are on the ride now?

After the second ride two get off and seven get on; two off, seven on. Keep the new number firmly in your head. The end of the third ride: this time three get off, but five more get on. Three off, five on. How many people are on the ride now? You've got 10 seconds to work out the answer and write it down. Time starts now.

OK, Matrix, tell us how many people are on the ride.

MATRIX: At the start there are nine people on the ride. At the end of the first ride four get off and three get on. That makes eight people. After the second ride two get off, seven get on. Making 13. At the end of the third ride three get off and five get on. So by the end of ride three, there are 15 lucky people on the 'Ghosts in space!' ride.

RALPH: 15 is the answer then. So give yourself five points for a right answer, none for a wrong one. Add up all the points you've got so far.

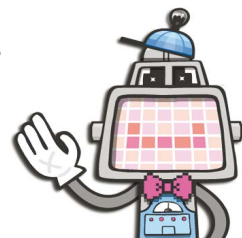
Moving on into the final round then and here you've got a chance to really add to that score because in Round 3 there are 10 points for a correct answer. So let's start.

Round 3. Juggling numbers!

RALPH: Here's how it works. Our special, randomly-selected, number generator –

MATRIX: That's me of course!

RALPH: - is going to produce three numbers - say 4, 2 and 5 - which you have to juggle around using any of the four mathematical operations (add, subtract, multiply and divide) and try to make the answer come to a target number. Which in this case is 22.





MATRIX: That's easy. $4 \times 5 = 20$; $+ 2 = 22$.

RALPH: Amazing, Matrix! Now the rules for juggling numbers are simple: Matrix is going to come up with three numbers and a target number. You write them down. From that moment you've got 30 seconds exactly to work out the answer. Matrix - start juggling!

MATRIX: The three numbers are 4, 15, 3.

RALPH: There we are: 4, 15, 3. And the target number, Matrix?

MATRIX: The target number is 49.

RALPH: So how do you make 49 using only the numbers 4, 15 and 3? You can only use each number once but you can add them, subtract, or multiply or divide. You've got just 30 seconds to think about it now.

Time's up. Come on, Matrix, tell me how did you make 49 from 4, 15 and 3.

MATRIX: $15 \times 3 = 45$; $45 + 4 = 49$.

RALPH: Give yourself 10 points if you're right, no points if you're wrong. But if you think you've found a different way of doing it ask your teacher to check it when the quiz is over. So let's have another go at number juggling. Matrix, give us the numbers!

MATRIX: 4, 36, 8.

RALPH: So write them down. 4, 36 and 8. And what is the target this time, Matrix?

MATRIX: 17.

RALPH: That's it then. Make 17 using 4, 36 and 8. This one's a bit harder so you get one minute's thinking time, starting now.

I wonder if you managed to work it out in time. Give us the answer, Matrix.

MATRIX: $36 \div 4 = 9$; $9 + 8 = 17$.

RALPH: Award yourself 10 more points if you got it right, no points if you are wrong. But don't forget if you think you found another way of doing it check with your teacher. I wonder if anyone got all the answers right? If so you're well on the way to becoming a mental maths mastermind! Time to say goodbye, Matrix.

MATRIX: Goodbye, till next time!

RALPH: OK, that's the end of the quiz for today. Work out your final score.

