Hardest math questions

Parents have been left stumped by one maths question as pupils prepare for their exams(Image: Shared Content Unit)A maths exam question has proven so challenging that it left 85-per cent of people stumped while trying to solve it. The arrival of May marks the beginning of exam season, with millions of pupils putting their rigorous revision to the test.Regardless of whether you were a maths prodigy during your school days or someone who has completely erased all recollections of maths classes, the stress and anxiety linked with taking an exam are all too familiar. A recent survey conducted by Save My Exams among UK parents revealed that eight out of 10 parents couldn't answer a previous maths GCSE question concerning ratios.Ratios might initially appear complex, but there are formulas to decipher them. Numerous maths experts utilise social media platforms to demonstrate the correct approach to such questions.In one popular video, a secondary school teacher - who also serves as the head of maths - explained how to dissect and respond to a maths exam question about the ratio of sweets hypothetically received by three children.Content cannot be displayed without consentAs exams approach, many secondary school students receive revision assistance from their parents. Bearing this in mind, experts from Save My Exams asked 500 parents to answer a past paper GCSE maths question, reports the Mirror.The question, which would be included in both the foundation and higher paper, left 85-per cent of individuals unable to provide a solution. In fact, 55-per cent of participants answered incorrectly, while 30-per cent couldn't provide an answer at all.A recent survey revealed that eight out of 10 parents couldn't answer a previous maths question concerning ratios(Image: Getty Images)UK secondary school students' parents were faced with a tricky question about changing ratio. Lucy Kirkham, head of STEM at Save My Exams, unravelled the solution, saying: "This GCSE Maths question relates to changing ratios, and requires students and parents to correctly find the value of one part, in order to work out how much money Chris gave to Errol."Before being able to calculate this, you first need to work out how much each part of the ratio is worth by dividing how much Debbie gets by her part of the ratio, then multiplying this by Chris and Errol's ratios."Debbie's part in the ratio was 4 and she received £120. So, the first step would be to divide 120 by 4, giving an answer of 30. This figure can then be multiplied by each of the figures in the original ratio (3:4:2) to show how much each person received.Chris received three shares and 3 x 30 is 90, meaning he received £90. Errol received two shares and 2 x 30 is 60.She continued: "One part is therefore worth £30, multiplying this by each of the other shares, Errol gets £60 and Chris £90, meaning they have shared £270 in total."In the second ratio, there are 10 shares in total (2 + 5 + 3 = 10) so one part is equivalent to £27, as you divide the total amount the friends have by the total shares in the new ratio."Errol had three shares in the second ratio and 3 x 27 is 81.The expert explained: "Finally, you can work out how much Errol now gets by deducting the two values Errol had (this would be £81 minus £60) in each ratio, giving a final answer of £21." Together with Goldbach's, the Twin Prime Conjecture is the most famous in Number Theory—or the study of natural numbers and their properties, frequently involving prime numbers. Since you've known these numbers since grade school, stating the conjectures is easy.When two primes have a difference of 2, they're called twin primes. So 11 and 13 are twin primes, as are 599 and 601. Now, it's a Day 1 Number Theory fact that there are infinitely many prime numbers. So, are there infinitely many twin primes? The Twin Prime Conjecture says yes. Let's go a bit deeper. The first in a pair of twin primes is, with one exception, always 1 less than a multiple of 6. And so the second twin prime is always 1 more than a multiple of 6. You can understand why, if you're ready to follow a bit of heady Number Theory. Keep Learning: If We Draw Graphs Like This, We Can Change Computers ForeverAll primes after 2 are odd. Even numbers are always 0, 2, or 4 more than a multiple of 6, while odd numbers are always 1, 3, or 5 more than a multiple of 6. Well, one of those three possibilities for odd numbers causes an issue. If a number is 3 more than a multiple of 6, then it has a factor of 3. Having a factor of 3 means a number isn't prime (with the sole exception of 3 itself). And that's why every third odd number can't be prime. How's your head after that paragraph? Now imagine the headaches of everyone who has tried to solve this problem in the last 170 years. The good news is that we've made some promising progress in the last decade. Mathematicians have managed to tackle closer and closer versions of the Twin Prime Conjecture. This was their idea: Trouble proving there are infinitely many primes with a difference of 2? How about proving there are infinitely many primes with a difference of 70,000,000? That was cleverly proven in 2013 by Yitang Zhang at the University of New Hampshire.For the last six years, mathematicians have been improving that number in Zhang's proof, from millions down to hundreds. Taking it down all the way to 2 will be the solution to the Twin Prime Conjecture. The closest we've come—given some subtle technical assumptions—is 6. Time will tell if the last step from 6 to 2 is right around the corner, or if that last part will challenge mathematicians for decades longer. By Kathleen Cantor, 10 Sep 2020 Mathematics has played a major role in so many life-altering inventions and theories. But there are still some math equations that have managed to elude even the greatest minds, like Einstein and Hawkins. Other equations, however, are simply too large to compute. So for whatever reason, these puzzling problems have never been solved. But what are they? Like the rest of us, you're probably expecting some next-level difficulty in these mathematical problems. Surprisingly, that is not the case. Some of these equations are even based on elementary school concepts and are easily understandable - just unsolvable. 1. The Riemann Hypothesis Equation: $\sigma (n) \leq Hn + \ln (Hn)eHn$ Where n is a positive integer Hn is the n-th harmonic number $\sigma(n)$ is the sum of the positive integers divisible by n For an instance, if n = 4 then $\sigma(4)=1+2+4=7$ and H4 = 1+1/2+1/3+1/4. Solve this equation to either prove or disprove the following inequality $n\geq1$? Does it hold for all $n\geq1$? This problem is referred to as Lagarias's Elementary Version of the Riemann Hypothesis and has a price of a million dollars offered by the Clay Mathematics Foundation for its solution. 2. The Collatz Conjecture Equation: 3n+1 where n is a positive integer n/2 where n is a non-negative integer Prove the answer end by cycling through 1,4,2,1,4,2,1,… if n is a positive integer. This is a repetitive process and you will repeat it with the new value of n you get. If your first n = 1 then your subsequent answers will be 1, 4, 2, 1, 4, 2, 1, 4… infinitely. And if n = 5 the answers will be 5,16,8,4,2,1 the rest will be another loop of the values 1, 4, and 2. This equation was formed in 1937 by a man named Lothar Collatz which is why it is referred to as the Collatz Conjecture. 3. The Erdős-Strauss Conjecture Equation: 4/n=1/a+1/b+1/c where $n\geq2$ a, b and c are positive integers. This equation aims to see if we can prove that for if n is greater than or equal to 2, then one can write 4*n as a sum of three positive unit fractions. This equation was formed in 1948 by two men named Paul Erdős and Ernst Strauss which is why it is referred to as the Erdős-Strauss Conjecture. 4. Equation Four Equation: Use 2(2∧127)-1 – 1 to prove or disprove if it's a prime number or not? Looks pretty straight forward, does it? Here is a little context on the problem. Let's take a prime number 2. Now, 22 – 1 = 3 which is also a prime number. 25 – 1 = 31 which is also a prime number and so is 27−1=127. 2127 −1=170141183460469231731687303715884105727 is also prime. 5. Goldbach's Conjecture Equation: Prove that x + y = n where x and y are any two primes n is ≥ 4 This problem, as relatively simple as it sounds has never been solved. Solving this problem will earn you a free million dollars. This equation was first proposed by Goldbach hence the name Goldbach's Conjecture. If you are still unsure then pick any even number like 6, it can also be expressed as 1 + 5, which is two primes. The same goes for 10 and 26. 6. Equation Six Equation: Prove that (K)n = JK1N(q)JO1N(q) This equation tries to portray the relationship between quantum invariants of knots and the hyperbolic geometry of knot complements. Although this equation is in mathematics, you have to be a physics familiar to grasp the concept. 7. The Whitehead Conjecture Equation: G = (S | R) when CW complex K (S | R) is aspherical if π2 (K (S | R)) = 0 What you are doing in this equation is prove the claim made by Mr. Whitehead in 1941 in an algebraic topology that every subcomplex of an aspherical CW complex that is connected and in two dimensions is also spherical. This was named after the man, Whitehead conjecture. 8. Equation Eight Equation: (EQ4) This equation is the definition of morphism and is referred to as an assembly map. Check out the reduced C*-algebra for more insight into the concept surrounding this equation. 9. The Euler-Mascheroni Constant Equation: y=limn→∞(∑m=1n1m−log(n)) Find out if y is rational or irrational in the equation above. To fully understand this problem you need to take another look at rational numbers and their concepts. The character y is what is known as the Euler-Mascheroni constant and it has a value of 0.5772. This equation has been calculated up to almost half of a trillion digits and yet no one has been able to tell if it is a rational number or not. 10. Equation Ten Equation: π + e Find the sum and determine if it is algebraic or transcendental. To understand this question you need to have an idea of algebraic real numbers and how they operate. The number pi or π originated in the 17th century and it is transcendental along with e. but what about their sum? So Far this has never been solved. Conclusion As you can see in the equations above, there are several seemingly simple mathematical equations and theories that have never been put to rest. Decades are passing while these problems remain unsolved. If you're looking for a brain teaser, finding the solutions to these problems will give you a run for your money. See the 26 Comments below. In the late 19th century, a German mathematician named Georg Cantor blew everyone's minds by figuring out that infinities come in different sizes, called cardinalities. He proved the foundational theorems about cardinality, which modern day math majors tend to learn in their Discrete Math classes.Cantor proved that the set of real numbers is larger than the set of natural numbers, which we write as $|\mathbb{R}|>|\mathbb{N}|$. It was easy to establish that the size of the natural numbers, $|\mathbb{N}|$, is the first infinite size; no infinite set is smaller than ℕ.Now, the real numbers are larger, but are they the second infinite size? This turned out to be a much harder question, known as The Continuum Hypothesis (CH).If CH is true, then $|\mathbb{R}|$ is the second infinite size, and no infinite sets are smaller than ℝ, yet larger than ℕ. And if CH is false, then there is at least one size in between.So what's the answer? This is where things take a turn.CH has been proven independent, relative to the baseline axioms of math. It can be true, and no logical contradictions follow, but it can also be false, and no logical contradictions will follow.It's a weird state of affairs, but not completely uncommon in modern math. You may have heard of the Axiom of Choice, another independent statement. The proof of this outcome spanned decades and, naturally, split into two major parts: the proof that CH is consistent, and the proof that the negation of CH is consistent.The first half is thanks to Kurt Gödel, the legendary Austro-Hungarian logician. His 1938 mathematical construction, known as Gödel's Constructible Universe, proved CH compatible with the baseline axioms, and is still a cornerstone of Set Theory classes. The second half was pursued for two more decades until Paul Cohen, a mathematician at Stanford, solved it by inventing an entire method of proof in Model Theory known as "forcing."Gödel's and Cohen's halves of the proof each take a graduate level of Set Theory to approach, so it's no wonder this unique story has been esoteric outside mathematical circles. For decades, mathematics has been a fascinating and challenging topic. People have been interested in learning and getting good at math from ancient Greeks to modern mathematicians. But have you ever wondered which math problem is the most challenging? What could be so tricky and complicated that only some of the brightest mathematicians have been able to solve it? This article will look at 13 of the hardest math problems and how mathematicians have tried to solve them. Continue reading the article to explore the world's hardest math problems, listed below. The Poincaré Conjecture The Prime Number Theorem Fermat's Last Theorem The Reimann Hypothesis Classification of Finite Simple Groups Four Color Theorem Goldbach's Conjecture Inscribed Square Problem Twin Prime Conjecture The Continuum Hypothesis Collatz Conjecture Birch and Swinnerton-Dyer conjecture The Kissing Number Problem Source: Clay Math Institute Mathematicians struggled for about a century with the Poincaré conjecture, which was put forth by Henri Poincaré in 1904. According to this theory, every closed, connected three-dimensional space is topologically identical to a three-dimensional sphere (S3). We must explore the field of topology to comprehend what this entails. The study of properties of objects that hold after being stretched, bent, or otherwise distorted is known as topology. In other words, topologists are fascinated by how things can change without rupturing or being torn. The topology of three-dimensional spaces is the subject of the Poincaré conjecture. A space volume with three dimensions—length, breadth, and height—is a three-dimensional space. A three-dimensional object called a sphere has a round and curved surface. According to the Poincaré Conjecture, a three-sphere (S3), or the collection of points in four dimensions that are all at a fixed distance from a given point, is topologically identical to every simply-connected, closed, three-dimensional space (i.e., one that has no gaps or voids) and edges. Although it would appear easy, it took more than a century to confirm the conjecture thoroughly. Poincaré expanded his hypothesis to include any dimension (n-sphere). Stephen Smale, an American mathematician, proved the conjecture to be true for n = 5 in 1961. Freedman, another American mathematician, proved the conjecture to be true for n = 4 in 1983. Grigori Perelman, a Russian mathematician, then proved the conjecture to be true for n = 3 in 2002, completing the solution. Perelman eventually addressed the problem by combining topology and geometry. One of the highest awards in mathematics, the Fields Medal, was given to all three mathematicians. Perelman rejected the Fields Medal. He was also given a $1 million prize by the Clay Mathematics Institute (CMI) of Cambridge, Massachusetts, for resolving one of the seven Millennium Problems, considered one of the world's most challenging mathematical puzzles. However, he turned it down as well. The prime number theorem (PNT) explains how prime numbers asymptotically distribute among positive integers. It shows how fast primes become less common as numbers get bigger. The prime number theorem states that the number of primes below a given natural number N is roughly N/log(N), with the word "approximately" carrying the typical statistical connotations. Two mathematicians, Jacques Hadamard and Charles Jean de la Vallée Poussin, independently proved the Prime Number Theorem in 1896. Since then, the proof has frequently been the subject of rewrites, receiving numerous updates and simplifications. However, the theorem's influence has only increased. French lawyer and mathematician Pierre de Fermat lived in the 17th century. Fermat was one of the best mathematicians in history. He talked about many of his theorems in everyday conversation because math was more of a hobby for him. He made claims without proof, leaving it to other mathematicians decades or even centuries later to prove them. The hardest of them is now referred to as Fermat's Last Theorem. Fermat's last theorem states that; there are no positive integers a, b, and c that satisfy the equation an + bn = cn for any integer value of n greater than 2. In 1993, British mathematician Sir Andrew Wiles solved one of history's longest mysteries. As a result of his efforts, Wiles was knighted by Queen Elizabeth II and given a special honorary plaque rather than the Fields Medal because he was old enough to qualify. Wiles synthesized recent findings from many distinct mathematics disciplines to find answers to Fermat's well-known number theory query. Many people think Fermat never had proof of his Last Theorem because Elliptic Curves were utterly unknown in Fermat's time. Source: Quanta Magazine Mathematicians have been baffled by the Riemann Hypothesis for more than 150 years. It was put forth by the German mathematician Bernhard Riemann in 1859. According to Riemann's Hypothesis Every Riemann zeta function nontrivial zero has a real component of ½. The distribution of prime numbers can be described using the Riemann zeta function. Prime numbers, such as 2, 3, 5, 7, and 11, can only be divided by themselves and by one. Mathematicians have long been fascinated by the distribution of prime numbers because figuring out their patterns and relationships can provide fresh perspectives on number theory and other subject areas. Riemann's hypothesis says there is a link between how prime numbers are spread out and how the zeros of the Riemann zeta function are set up. If this relationship is accurate, it could significantly impact number theory and help us understand other parts of mathematics in new ways. The Riemann Hypothesis is still unproven, despite being one of mathematics' most significant unsolved issues. Michael Atiyah, a mathematician, proclaimed in 2002 that he had proved the Riemann Hypothesis, although the mathematical community still needs to acknowledge his claim formally. The Clay Institute has assigned the hypothesis as one of the seven Millennium Prize Problems. A $1 million prize is up for anyone who can prove the Riemann hypothesis to be true or false. Abstract algebra can be used to do many different things, like solve the Rubik's cube or show a body-swapping fact in Futurama. Algebraic groups follow a few basic rules, like having an "identity element" that adds up to 0.Groups can be infinite or finite, and depending on your choice of n, it can be challenging to describe what a group of a particular size n looks like. There is one possible way that the group can look at whether n is 2 or 3. There are two possibilities when n equals 4. Mathematicians intuitively wanted a complete list of all feasible groups for each given size. The categorization of finite simple groups, arguably the most significant mathematical undertaking of the 20th century, was planned by Harvard mathematician Daniel Gorenstein, who presented the incredibly intricate scheme in 1972. By 1985, the project was almost finished, but it had consumed so many pages and publications that peer review by a single person was impossible. The proof's numerous components were eventually reviewed one by one, and the classification's completeness was verified. The proof was acknowledged mainly by the 1990s. Verification was later streamlined to make it more manageable, and that project is still active today. Source: Carton's Paradise According to four color theorem Any map in a plane can be given a four-color coloring utilizing the rule that no two regions sharing a border (aside from a single point) should have the same color. Two mathematicians at the University of Illinois at Urbana-Champaign, Kenneth Appel and Wolfgang Hakan identified a vast, finite number of examples to simplify the proof. They thoroughly examined the over 2,000 cases with the aid of computers, arriving at an unheard-of proof style. The proof by Appel and Hakan was initially debatable because a computer generated it, but most mathematicians ultimately accepted it. Since then, there has been a noticeable increase in the usage of computer-verified components in proofs, as Appel and Hakan set the standard. Source: Carton's Paradise According to Goldbach's conjecture, every even number (higher than two) is the sum of two primes. You mentally double-check the following for small numbers: 18 is 13 + 5, and 42 is 23 + 19. Computers have tested the conjecture for numbers up to a certain magnitude. But for all natural numbers, we need proof. Goldbach's conjecture resulted from correspondence between Swiss mathematician Leonhard Euler and German mathematician Christian Goldbach in 1742. Euler is regarded as one of the finest mathematicians in history. Although I cannot prove it, in the words of Euler, "I regard [it] as a totally certain theorem." Euler might have understood why it is conversely tricky to resolve this problem. More significant numbers have more methods than smaller ones to be expressed as sums of primes. In the same way that only 3+5 can split eight into two prime numbers, 42 can be divided into 5+37, 11+31, 13+29, and 19+23. Therefore, for vast numbers, Goldbach's Conjecture is an understatement. The Goldbach conjecture has been confirmed for all integers up to 4*1018, but an analytical proof has yet to be found. Many talented mathematicians have attempted to prove it but have yet to succeed. Another complex geometric puzzle is the "square peg problem," also known as the "inscribed square problem" or the "Toeplitz conjecture."The Inscribe Square Problem Hypothesis asks: Does every simple closed curve have an inscribed square? In other words, it states, " For any curve, you could draw on a flat page whose ends meet (closed), but lines never cross (simple); we can fit a square whose four corners touch the curve somewhere. The inscribed square problem is unsolved in geometry. It bears the names of mathematicians Bryan John Birch and Peter Swinnerton-Dyer, who established the conjecture using automated calculation in the first half of the 1960s. Only specific instances of the hypothesis have been proven as of 2023. The Twin Prime Conjecture is one of many prime number-related number theory puzzles. Twin primes are two primes that differ from each other by two. The twin prime examples include 11 and 13 and 599 and 601. Given that there are an unlimited number of prime numbers, according to number theory, there should also be an endless number of twin primes. The Twin Prime Conjecture asserts that there are limitless numbers of twin primes. In 2013, Yitang Zhang did groundbreaking work to solve the twin prime conjecture. However, the twin prime conjecture still needs to be solved. Infinities are everywhere across modern mathematics. There are infinite positive whole numbers (1, 2, 3, 4, etc.) and infinite lines, triangles, spheres, cubes, polygons, etc. It has also been proven by modern mathematics that there are many sizes of infinity. If the elements of a set can be arranged in a 1-to-1 correspondence with the positive whole numbers, we say the set of elements is countably infinite. Therefore, the set of whole numbers and rational numbers are countable infinities. Georg Cantor found that the set of real numbers is uncountable. In other words, even if we used all the whole numbers, we would never be able to go through and provide a positive whole number to every real number. Uncountable infinities might be seen as "larger" than countable infinities. According to the continuum hypothesis, there must be a set of numbers whose magnitude strictly falls between countably infinite and uncountably infinite. The continuum hypothesis differs from the other problems in this list in that it is impossible to solve or at least impossible to address using present mathematical methods. As a result, even though we have yet to determine whether the continuum hypothesis is accurate, we do know that it cannot be supported by the tools of modern set theory either. It would be necessary to develop a new framework for set theory, which has yet to be done, to resolve the continuum hypothesis. Source: pythin.plainenglish.io To understand Collatz's conjecture, try to understand the following example. First, you have to pick a positive number, n. Then, from the last number, create the following sequence: If the number is even, divide by 2. If it's odd, multiply by 3 and then add 1. The objective is to keep going through this sequence until you reach 1. Let's try this sequence with the number 12 as an example. Starting with number 12, we get:12, 6, 3, 10, 5, 16, 8, 4, 2, 1 Starting at 19, we obtain the following:19, 58, 29, 88, 44, 22, 11, 34, 17, 52, 26, 13, 40, 20, 10, 5, 16, 8, 4, 2, 1 According to the Collatz conjecture, this sequence will always end in 1, regardless of the value of n you started with. This speculation has been tested for all values of n up to 87,260, but no proof has been found. Collatz's conjecture has been unsolved up till now. Mathematical problem-solver Paul Erdree once said of the Collatz Conjecture, "Mathematics may not be ready for such problems." Two British mathematicians, Bryan Birch and Peter Swinnerton-Dyer formulated their hypotheses in the 1960s. The Birch and Swinnerton-Dyer conjecture in mathematics describes rational answers to the equations defining an elliptic curve. This hypothesis states explicitly that there are an infinite number of rational points (solutions) if $\zeta(1)$ equals 0 and that there are only a finite number of such places if $\zeta(1)$ is not equal to 0. For Birch and Swinnerton-Dyer's conjecture, Euclid provided a comprehensive solution, but this becomes very challenging for problems with more complex solutions. Yu. V. Matiyasevich demonstrated in 1970 that Hilbert's tenth problem could not be solved, saying there is no mechanism for identifying when such equations have a whole number solution. As of 2023, only a few cases have been solved. Source: BGSmath.cat Each sphere has a Kissing Number, the number of other spheres it is kissing, when a group of spheres is packed together in one area. For example, your kissing number is six if you touch six nearby spheres. Nothing difficult. Mathematically, the condition can be described by the average kissing number of a tightly packed group of spheres. However, a fundamental query regarding the kissing number remains unsolved. First, you must learn about dimensions to understand the kissing number problem. In mathematics, dimensions have a special meaning as independent coordinate axes. The two dimensions of a coordinate plane are represented by the x- and y-axes. A line is a two-dimensional object, whereas a plane is a three-dimensional object. Mathematicians have established the highest possible kissing number for spheres with those few dimensions for these low numbers. On a 1-D line, there are two spheres—one to your left and the other to your right. The Kissing Problem is generally unsolved in dimensions beyond three. A complete solution for the kissing problem number faces many obstacles, including computational constraints. The debate continued to solve this problem. When it comes to pushing the boundaries of the enormous human ability to comprehend and problem-solving skills, the world's hardest math problems are unquestionably the best. These issues, which range from the evasive Continuum Hypothesis to the perplexing Riemann Hypothesis, continue to puzzle even the sharpest mathematicians. But regardless of how challenging they are, these problems keep mathematicians inspired and driven to explore new frontiers. Whether or not these problems ever get resolved, they illustrate the enormous ability of the human intellect. Even though some of these issues might never fully be resolved, they continue to motivate and inspire advancement within the field of mathematics and reflects how broad and enigmatic this subject is! Let us know out of these 13 problems which problem you find the hardest! Parents were left stumped after trying to answer the GCSE maths question(Image: Getty Images/Stock Image)This week, teenagers across the UK are sitting their GCSE exams in a range of subjects, including maths. But there's been one GCSE calculation, labelled 'impossible', that has left even parents stumped when trying to figure out the answer.Secondary school students will no doubt be working hard and cramming in some last-minute revision sessions this week as they sit an exam for each of their subjects. For many students - and adults - maths is one of the hardest subjects to get to grips with, and there'll be no shortage of teens spending extra time making sure they've nailed their algebra and fractions before their exam.And if you're a student looking for some extra revision material, or a parent wanting to see just how hard the GCSE exams of the current day are, why not try and complete this fiendishly difficult question that was featured in a real maths exam?READ MORE: People who write with one hand are 'more likely' to have dyslexia or schizophreniaMaths is known to be one of the trickiest subjects to tackle (Image: Getty Images)The question was put together after research from Save My Exams, who challenged parents to answer it and found that 100% of those quizzed got the answer wrong.Of course, expecting students to pass every question on their exam papers is unreasonable. But the challenge goes to show just how difficult the tests can be - and how much kudos kids deserve. It also revealed that parents might have some revision of their own to do.Surprisingly, the trick question failed to dent parents' confidence, despite their poor results. Of the 1,000 parents quizzed, 92% were unable to answer the question at all, and 8% failed to get the correct answer.Yet, an average of 75% of these parents still believed they could pass their children's exams. One in two (52%) admitted they don't always understand the homework questions their children are set, though.The GCSE maths question that the parents failed shows a shape with all its measurements in centimetres, where the area of the shape is A cm^2 and respondents are asked to show that $A = 2x^2 + 24x + 46$.Most parents did not know how to answer this questionThankfully, Save My Exams' maths lead Lucy Kirkham has worked out the answer for anyone left stuck by the question.Sharing advice, Lucy said: "Seeing questions with loads of Algebra can be scary but breaking them down into smaller chunks will help you work through them more easily."Our maths experts at Save My Exams create colour-coded model answers which break down each question into easier steps to carefully guide users to the correct answer."This question gives you the answer you're working towards, which can sometimes be off-putting as you wonder 'How am I ever going to get there?'. Don't let it worry you, just try to start with the first step and you'll surprise yourself with how far you can get!"Even if you don't get all the way through, marks are awarded for different stages of your working so you can always try to pick up some marks and use our model answers to see how you'd pick up the rest."A mathematician shared the answerIt is not just maths that confuses parents, however, though it ranked as the worst subject. According to the research by Save My Exams, parents struggled the most with Maths (53%), followed by Science (35%), Spanish (30%), French (29%) and English Literature (27%).A version of this story was first published on December 25th 2022.Did you get the right answer? Let us know in the comments.READ MORE: Uniqlo's 'divine' £39.90 gingham dress that 'fits perfectly'