

9/1 Put a circle round the correct answer:

Which of these expressions would yield the same answer, if the value of x is 6?

- a) $x^3 - 1$ b) $1 - (-x^3)$ c) $1 - ((-x)^3)$ d) $(1-x)^3$

9/2 What fraction of whole number multiples result in an even number?

9/3 Three consecutive odd numbers are added together to give a sum of 57. What are these three numbers?

9/4 Nina has 3 dice which are stacked one on top of the other. If the top face of the top dice is 6 and the dice which touch have the same face value, what is the value of the face on the bottom?

9/5 Using this dotty array, Raphael says "I can make at least 5 different sized squares, the area of the biggest square is how many times the smallest?"



9/6 A small triangular seating area has one seat at the apex, 2 in the next row, 3 in the next row. This continues until there are 10 chairs in the final row. How many chairs are there altogether?

9/7 In this triangular lattice, how many different-sized equilateral triangles could be drawn?



9/8 Different single digits (0 - 9) are represented by different letters. What is the greatest value of

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(0, 1, 2, 8 are already used)

9/9 At Wimbledon this year one person served at 160mph (miles per hour). If one mile is equal to 1.6 kilometres, how fast is that serve in metres per second?

9/10 A square is drawn on $(1, 1)$, $(1, 7)$, $(7, 7)$ and $(7, 1)$, what are the coordinates of the centre of this square?

9/11 Freddie is colouring in the prime numbers on a Hundred Square. He notices that there are 5 horizontal lines with only 2 primes in each of them. There is also a line with only one prime number in it. Which prime number is it?

9/12 Alice is using a hundred square to make a new game. She tells her group “Add the diagonal line that starts with 1 and finishes with 100”. What is the answer?

9/13 In an acting group, the girls are greater than 45% of the actors but less than 50% of the actors. What is the least number of girls in the group?

9/14 27 small cubes are put together to make a bigger cube of side length 3. If all sides but the bottom are painted red, how many small cubes have only 2 sides painted?

9/15 A rectangle has whole number sides and an area of 100cm^2 . What is the value of
greatest perimeter – smallest perimeter?

9/16 $1, 1 + 3 = 4, 1 + 3 + 5 = 9, 1 + 3 + 5 + \dots + 99 = ?$

9/17 Louise had a birthday party to which she invited many people. If she seated the guests on tables of 7, there was one left over, if she seated them in tables of 6, she still had one left over, same with 5, and 3 and 2. What is the least number of guests?

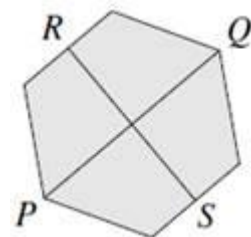
9/18 Find a pair of prime numbers less than 50 which given p , the other is $p^4 + 1$

9/19 A square ended cuboidal package has a volume of 300 cubic centimetres. If the dimensions are all in whole centimetres, what are the dimensions of the package that has the least surface area?

9/20 In this regular hexagon, the length of each side is 1cm.

What is the difference in length of line PQ and line RS?

Answer to 3 d.p.



MATHEX QUIZ ANSWERS Year 9 - 2018

No units required

Number	Answers	Comment
1	B and C	Both
2	$\frac{3}{4}$	
3	17, 19, and 21	All three, any order
4	1	
5	9	times
6	55	chairs
7	2	
8	1606	
9	71.1	Metres per second
10	(4, 4)	
11	97	
12	505	
13	5	girls
14	12	
15	162	
16	2500	
17	211	
18	2, 17	
19	5x5x12	
20	0.268	0.267949192cm

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