

10/1

Put a circle round the correct answer:

Which of these expressions would yield the biggest answer, if the value of x is -1?

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

10/2 Two consecutive odd numbers are added together to give a sum of 152. What are the two numbers?

10/3 How many individual digits need to be used to write all the numbers from 1 to 100 inclusive?

10/4 In 22 years my grandmother will be 99 years old, when was she born?

10/5 I have 13 cubes and 15 tetrahedrons. How many sides are there altogether?

10/6 $1, 1 + 3 = 4, 1 + 3 + 5 = 9, 1 + 3 + 5 + \dots + 99 = ?$

10/7 This dotty array has 16 dots and has an area of 9cm^2 . In another square dotty array there are 100 dots, what is the area of this new array?



10/8 A rectangle has whole number length sides and an area of 100cm^2 . What is the value of

greatest perimeter subtract smallest perimeter?

10/9 If the dots are 1cm apart, what is the area of this triangular lattice?



10/10 A rectangle is drawn on squared paper. The vertices are at (2, 2), (2, 4), (8, 2) and (x, y). Find the coordinates where the diagonals cross.

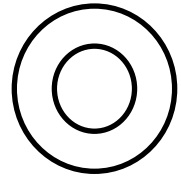
10/11 If the letters of the alphabet are replaced in order by prime numbers, beginning like this:

a	b	c	d	e
2	3	5	7	11

What is the value of z?

10/12 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. And there is one vertical column of 3 adjacent prime numbers – what are they?

10/13 Freddie is designing some buttons. If the radius of the inner circle is two thirds of the outer circle, what is the area of the space between the two circles?



10/14 New Mini Crusty Crab Patties come in sets of 4 (snack pack), 6 (meal size) and 15 (party size). The biggest number of Patties that cannot be bought is 17 (check it out). If they add a pack of 3 what is the biggest number that can't be bought?

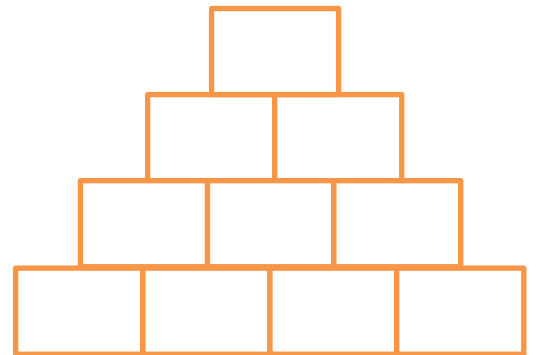
10/15 Five bowls of dog food (A, B, C, D & E) are laid out in a roughly circular manner. Nicky, the collie, visits bowl A first, and does not go directly from bowl C to D, how many different routes are possible for Nicky if she visits each bowl once.



10/16 Some 3-digit numbers have this quality: the middle number is the arithmetic mean of the other two.

How many 3-digit numbers have this quality if no zero in the hundreds column is allowed?

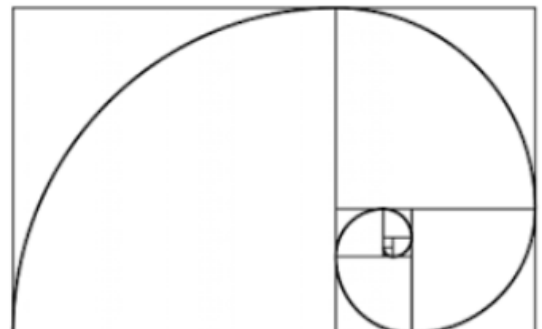
10/17 This is a climbing block of numbers where the row above is the additions of the two the blocks it is resting on. If the top number is 100, find the four bottom block numbers (no zeros allowed), so that, when added together, they are as big as possible. What is this greatest sum?



10/18 The screen of a new monster television that has a 60cm diagonal, also has sides in the ratio of 3:4. What is the area of the screen?

10/19 The two middle squares have a length of 1.

Use this fact to find the length of the longest arc, which is part of a circle.



10/20 A regular hexagon and a regular octagon are drawn with sides of 1cm. What is the difference in area between these two shapes?

MATHEX QUIZ ANSWERS Year 10 – 2018
No units required

Number	Answers	Comment
1	d) or $(1-x)^3$	either
2	75, 77	Both, either order
3	192	
4	1941	
5	138	sides
6	2500	
7	81	cm ²
8	162	
9	3.46	3.464101615
10	(5,3)	Accept 5,3
11	101	
12	3,13, 23	All, any order
13	$\frac{5}{9}\pi r^2$	Any order
14	5	patties
15	18	
16	34	
17	96	
18	1728	
19	17π or 53.4	53.40707511
20	2.23	2.230350914

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