

Mathex 2017

Year 9

9/1 Put a circle round the correct answer:

$$4x - 2(3 - x) =$$

- a) $6(x - 1)$ b) $2x - 6$ c) $4x + 6$ d) $6x - 1$

9/2 In the farmyard there are some chickens and some cows. There are 34 legs altogether. How many cows are there if there is one more cow than chickens?

9/3 Richard has some gold coins. If he puts them in rows of 5 he has one left over. If he puts them in rows of eight, he has seven left over. How many gold coins does Richard have?

9/4 If I add two whole numbers I get 20, if I multiply them I get 36, what are the two numbers?

9/5 I needed to order 2000 pens for this year's Mathex Competition. If approximately 3% of the pens fail to write, how many people will get a broken pen?

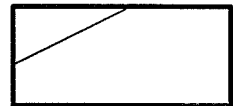
9/6 This number of this year, 2017, is prime. Which year is the next prime?

9/7 These are the first 5 triangle numbers,

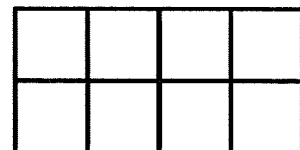
1,3,6,10,15,

Calculate the sum of the next five triangle numbers.

9/8 What is the area of the triangle if the line drawn connects the mid points of a rectangle 10cm by 5cm?



9/9 This is the fourth pattern in a sequence. In the first pattern there are two squares one on top of the other. How many squares are in the 100th pattern in the sequence?



9/10 Sasha was half the age of her mother 20 years ago. If Sasha is now 40, then how old is her mother?

9/11 The four interior angles of a quadrilateral are x° , $(3x)^\circ$, $(x+20)^\circ$ and $(x+40)^\circ$. Find the size in degrees of the largest angle in this quadrilateral.

9/12 The sum of two consecutive numbers is 323, what are the two numbers?

9/13 How many lines are required to connect each point to every other point.



9/14 An isosceles triangle has at least one angle of 30° .

What could the other angles be? (two sets of answers)

9/15 Nikki bought 26 brownies for herself and two friends. The biggest eater ate twice as many as Nikki while the other person ate one less than Nikki. There were 3 Brownies left over. How many brownies did the biggest eater eat?

9/16 The Fibonacci sequence begins 1, 1, 2, 3, 5, 8,

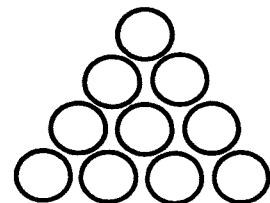
What is the fifth even number?

9/17 Jono adds up three sides of a rectangle and gets 68, while Phil adds up 3 sides of the rectangle and gets 52, what is the perimeter of the rectangle?

9/18 Find the value of a in this equation:

$$7^{a-4} = 823543$$

9/19 The numbers in the bottom line are added together in pairs to fill in the circle above them, until you reach the final circle. Using the digits 1, 2, 3, 4, in any order, fill in the bottom line, and work your way to fill in the top circle. Find the difference between the largest and smallest possible top-number.



9/20 The combined ages of all the children in a family is 57. The combined ages of Andy and Bob is 26 years. Of Bob and Cat it is 25 years, of Cat and Delia it is 22 and Delia and Evie it is 21. Who is the youngest and how old are they?

MATHEX QUIZ ANSWERS Year 9 - 2017

No units required

Number	Answers	Comment/not required
1	a) Or $6(x-1)$	either
2	6 or 6 cows	either
3	31	
4	2,18	Any order
5	60 or 60 pens	either
6	2027	
7	185	
8	6.25	cm^2
9	200	squares
10	60	years
11	150°	degrees
12	161, 162	Either order
13	28	
14	30, 120 and 30 ⁷⁵ , 75	Both sets required
15	12	
16	610	
17	80	cm
18	11	
19	8	
20	Evie is 9	Needs name and age