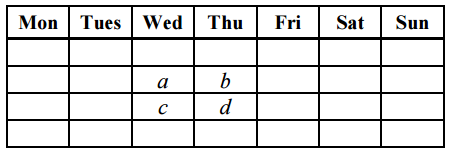
**FMA Team Mathematics Competition - FINALS**

**YEAR 9 – 2017**

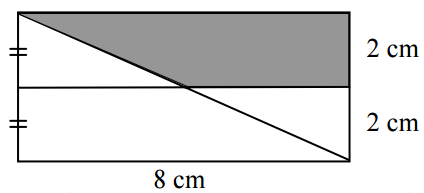
Y9/1 97 is a prime number. When its digits are reversed, the new number is also prime, i.e. 97 and 79 are both prime. How many two-digit prime numbers, less than 50, have this property?

Y9/2 Determine the coefficient of x in the expansion of

Y9/3 A bath fills in 12 minutes if the plug is in. It empties in 18 minutes when the tap is off. If the tap is running and the plug is out, how long will it take to fill the bath?

Y9/4 a, b, c and d are four adjacent dates in a calendar as shown. In the calendar,

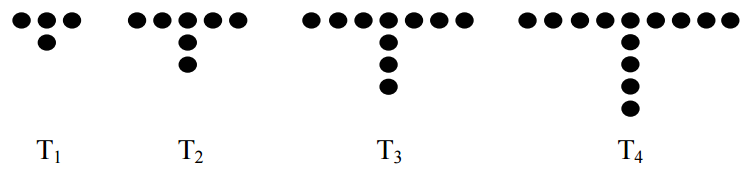
. What is ?

Y9/5 What fraction of the whole figure is shaded?

Y9/6 Bhavisha noted that school fees increased by 10% in 2010 and by 20% in 2011. What was the percentage increase in school fees over the two year period?

Y9/7 On the planet Mars they have a different kind of arithmetic. Here are a few Mars calculations:

What is the answer of 6 × 7 on Mars?

Y9/8 Sera uses dots to build T-shapes as shown below. How many dots will she use for?

Y9/9 When a number is multiplied by itself, the result is a square number. For example, 3 × 3 = 9 and 6 × 6 = 36 are square numbers. 12 × 12 = 144 is a 3-digit square number because it has 3 digits. How many 3-digit square numbers are there?

Y9/10 The average of seven numbers is 49. If 1 is added to the first number, 2 is added to the second number, 3 is added to the third number and so on up to the seventh number, what is the new average?



Y9/11 This large cube is made from smaller wooden cubes. All the faces of the large cube are painted blue, and then it is taken apart. What fraction of the surface is blue?

Y9/12 Juice is poured from a full 1 L bottle into an empty glass until both the glass and the bottle are 80% full. What is the volume of the glass?

Y9/13 Find the unit digit in the product of

Y9/14 If n is a whole number greater than 1 then is always divisible by ?

Y9/15 Riddle: If ¼ of a number is subtracted from the number itself, it will give a value which is equal to the sum of all angles of the Bermuda triangle.

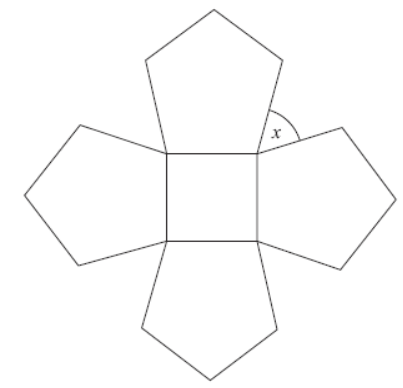
Y9/16 Fill in the missing number in the series,

Y9/17 The average weight of a class having 25 students is 38.4kg. If the average weight of all the 15 boys of the class is 40kg. Then find the average weight of the girls.

Y9/18 Write down the value of this expression.



Y9/19 The average petrol consumption of a car is 7.6 L/100 km. If a car starts with a full tank of 45 L, how many litres of petrol will be in the tank after the car has travelled 325 km?



Y9/20 The diagram shows square and 4 regular pentagons. Work out the size of the angle marked x.

TIE BREAKER

Y9/21 How many two-digit numbers are there with both digits even?

Y9/22 What power of 7 is 40 353 607?

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Y9/22 What power of 7 is 40 353 607?