



UNITED KINGDOM MATHEMATICS TRUST

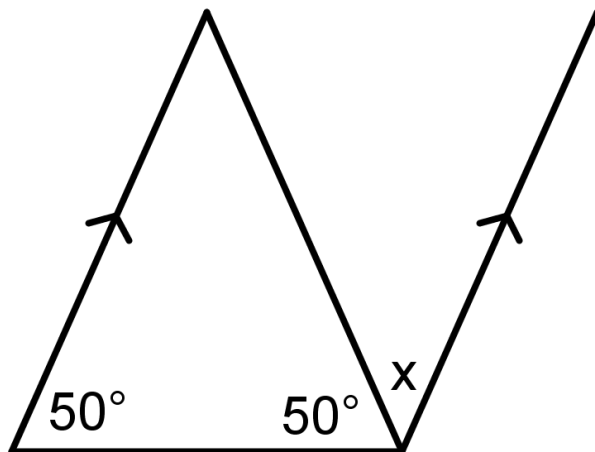
RELAY ROUND

- Time allowed: 40 minutes.
- Teams will work in pairs, in separate parts of the room.
- There are 30 questions in total, 15 for Pair A and 15 for Pair B.
- *Two* marks are awarded for every correct answer. Pairs will have two chances to answer each question and there is no penalty for giving a correct answer at the second attempt. A question is marked either correct or incorrect and no partial marks are awarded.

A1 Betty went to the shop with £1.00. She spent a quarter of her money on toffees and three-fifths on lollies. How much change did she take home?



B8 Find x .



(Diagram not drawn to scale)



B1 Fred took one third of the chocolate buttons. George took a quarter of the buttons and Harry took one sixth of them. What fraction, in its simplest form, was left for William?

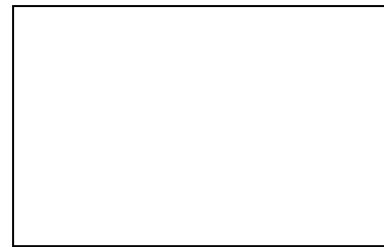


A9 A display board 12 feet by 10 feet is coloured in red, blue and yellow. The red takes up one quarter of the board and the yellow is one third of the board. Blue covers the rest of the board. What is the area covered in blue?

(Give your answer in square feet)



A2 What is the difference between 7×18 and 6×19 ?



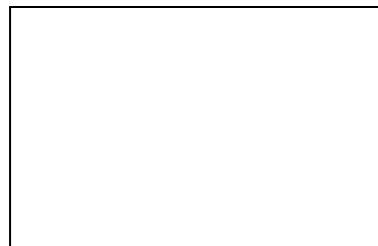
B9 A, B and C are three different whole numbers.

$$A + B + C = 20 \qquad B - C = 1 \qquad A + B = 15$$

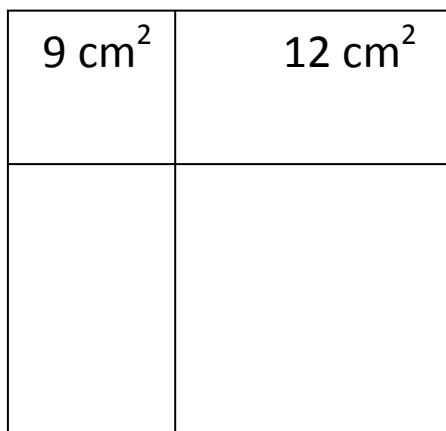
Find A



B2 Find the sum of all the prime numbers between 10 and 20.



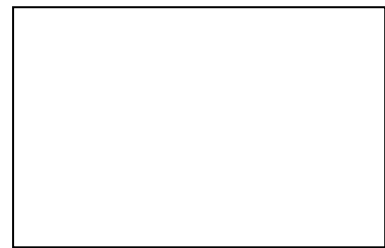
A10 This square has been divided into four sections. The areas of two of the sections, one a square and the other a rectangle, are given as 9 cm^2 and 12 cm^2 . The lengths of the sides of these two sections are whole numbers. What is the perimeter of the square?



A3 Multiply the number of sides of a hexagon by the number of faces of a square-based pyramid.

Divide the number of sides of a pentagon by the faces of a triangular prism.

Add the results together.



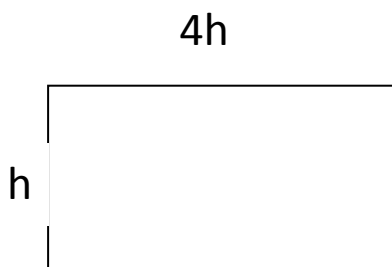
B10 I have a squad of seven players from whom to choose a team for a five-a-side game. There is only one goal keeper, so she must be in the team. The captain, who is not the goal keeper must also be in the team. In how many different ways can I make up the team from the five remaining players?



B3 Find the product of 52 and 62.



A11 The length of this rectangle is 4 times the width. The perimeter is 40cm. What is the area of the rectangle?



(Diagram not drawn to scale)



A4 There are six possible results when you roll a die. How many different, possible totals are there if you roll two dice and add the points together?



B11 Jane wanted to weigh her dog, Puddles, but he would not stand on the scales. The only way Jane could weigh Puddles was to pick him up and step onto the scales herself. She noted the reading on the dial was 72 Kg. Puddles is one-sixth of the total weight. What did Jane weigh?



B4 I make up a sequence of numbers, starting with the number 4, and multiplying by 3 each time to get to my next number.

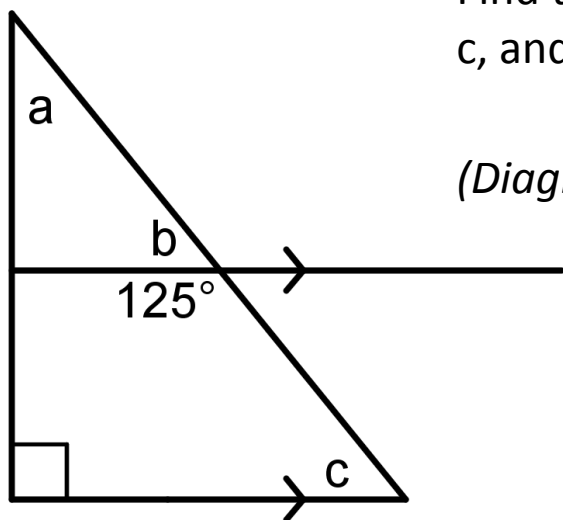
What is the 7th number in my sequence?



A12

This is a right angled triangle.
Find the value of angles a, b and c, and add them together.

(Diagram not drawn to scale.)



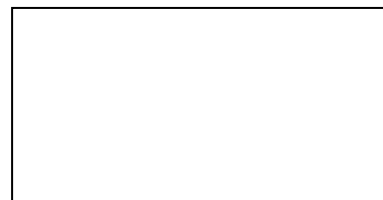
A5 Find the sum of all the single digit prime numbers.



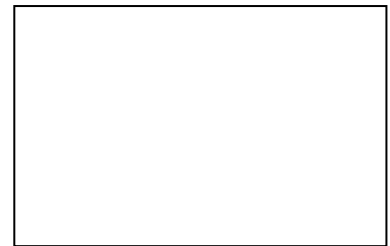
B12 I have a bag full of many red and black balls. I pick one from the bag and make a note of its colour then put it back. I repeat the process a further two times making a note of the colour of the ball each time.

Exactly two of the three balls I picked had the same colour.

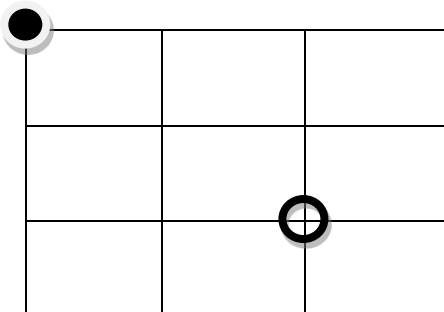
In how many ways could this have happened?



B5 John's Uncle Jim will give John six Euros (6€) for every £5 he wants to exchange. If John has £315 to exchange, how many Euros will Uncle Jim give John?

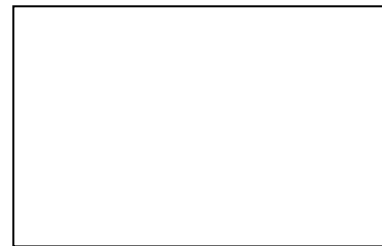


A13 Start at ● and move to ○. You may only move along the lines either right or down. Record how many different ways you can go from ● to ○.

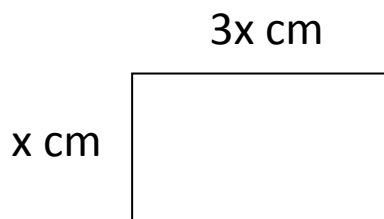


A6 What is the median of the following numbers?

5 6 6 8 7 2 6 5 9 3 4 7



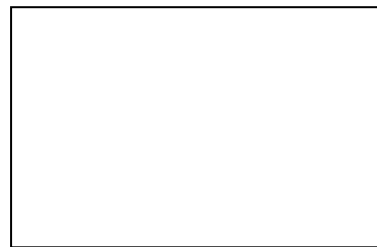
B13 The rectangle has a length of $3x$ cm and a width of x cm. The perimeter is 48 cm. What is the area?



(Diagram not drawn to scale)



B6 A rectangle is made up of 8 identical squares and has an area of 72cm^2 . Four more squares, of the same size, are added to the shape, what is the new area?



A14 The hour hand of an old clock is stuck at the top of the face pointing to 12. When the minute hand is at 22 minutes past, what is the angle between the two hands?



A7 I start writing down a sequence of numbers. My first number is 160000 and then I keep dividing by 4 to give me the next number.

What is the sixth number that I write down?



B14 Multiply the number of faces of a cone by the number of sides of a kite.


Divide the number of faces of a cuboid by the number of sides of an equilateral triangle.

Add the two results together.



B7 What is the mean of the following numbers?

5 6 6 8 7 2 6 5 9 3



A15 Find the product of all the square numbers less than 10.



A8 Each different letter represents a different digit. The letter O is 6 and U is 7.

Write down the number corresponding to FOUR.

$$\begin{array}{r} T \ W \ O \\ + \ T \ W \ O \\ \hline F \ O \ U \ R \end{array}$$

B15 Mum went to the market to buy some fruit. She discovered that she only had £5 in her purse. She spent 25% of her money on apples and 60% of what was left on grapes. How much money did mum bring home?