RELAY ROUND

- Time allowed is 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 answer correct. 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.

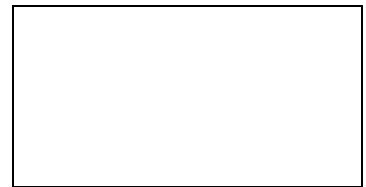**A1.** What is the sum of the first seven prime numbers?

B8. What is the value of: $\frac{2}{3}$ X $\frac{3}{4}$ X $\frac{4}{5}$ X $1\frac{1}{4}$ X $1\frac{1}{3}$ X $1\frac{1}{2}$?

B1. What is the value of 5 + 3 X 4 − 7?

A9. What is the value of 2012 − 202 + 20 − 2?

A2. An isosceles triangle has an 80° degree angle. How many degrees are there in the smallest possible angle in the triangle?
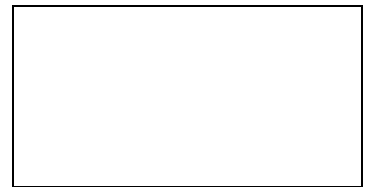
B9. A rectangle has sides 2a - 5 and 4a + 1 and a perimeter of 100? What is the value of a?

B2. A quadrilateral has angles of sizes 60°, 85° and 125°.

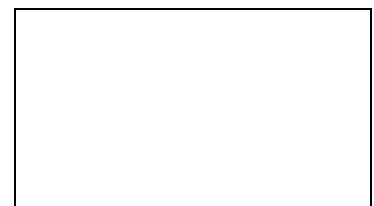How many degrees are there in the fourth angle?

A10. Two girls, Anna and Belinda, and three boys, Colin, David and Edward, stand in line for their photograph to be taken. No boy must stand next to another boy. How many possible different photographs could be taken?

A3. What is $\frac{2}{3}$ of 45 added to $\frac{3}{4}$ of 60?

B10. Alan continuously writes the days of the week, starting with Monday. What is the 2012th letter that he writes down?

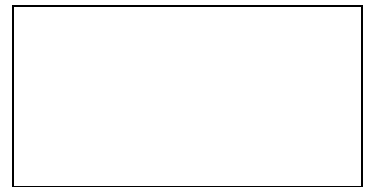**B3.** What is the sum of the first four cube numbers?

A11. Pippa thinks of a number. When she divides the number by 2 the remainder is 1. When she divides it by 3 the remainder is 2. When she divides it by 4 the remainder is 3.

What is the smallest possible number that Pippa could be thinking of?

A4. You are told that $x = 5$, $y = 2$ and $z = 3$.

What is the value of $x^2 + yz^2$?

B11. Carla is being careless as she writes down a sum

$$58 - 38 = 27,$$

as the digits she has written are all one out.

What sum should Carla have written?

B4. Bessie's bus turned up at 11:05, 5 minutes early, but arrived at her destination at 12:15, 3 minutes late. How long should the bus journey have taken?

A12. 4! is a short way of writing 4x3x2x1. What is the last digit of 8! .
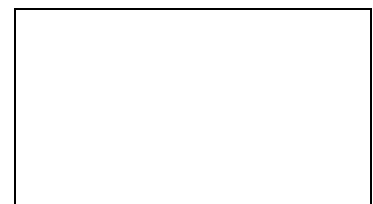
A5. Ben eats 1.5 cereal bars every day.

The cereal box holds 6 packets each containing 12 cereal bars.

How many days does one box of cereal bars last?

B12. What is the largest 4 digit palindrome whose digits are prime numbers and the total of its digits is 16?
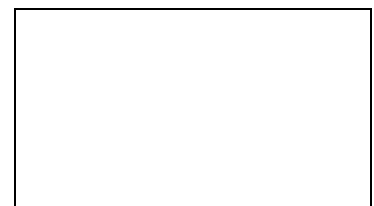
(A palindrome reads the same from left to right as from right to left e.g. 1221)

B5. Megan thinks of two numbers. When she multiplies these numbers together she gets 24. When she adds them together she gets 11. What are the two numbers that Megan is thinking about?

A13. The digits of the sum 30 + 47 = 21 need to be rearranged to make it correct. What is the correct sum?

A6. What is 20111102 - 11022011?

B13. What is the value of: $\frac{1}{2} + \frac{3}{4} + \frac{5+6}{7+8+9}$?

B6. How many times do you need to write down the number 2012 so that the sum of all the digits you have written is more than 1000?
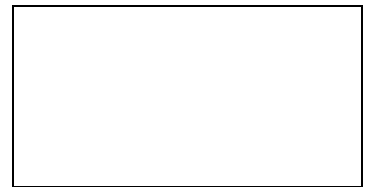
A14. What is the smallest 5 digit palindrome that is made up of 3 different digits, 2 of which are prime numbers and whose 5 digits have total 22?
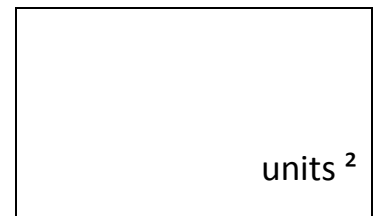
(A palindrome reads the same from left to right as from right to left e.g. 12321)

A7. For what value of *a* is the value of 5*a* – 4 three times the value of *a* + 2?
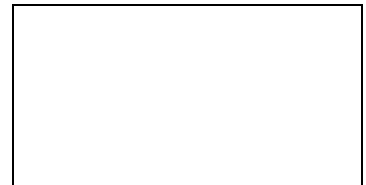

B14. A triangle has vertices at (3,1); (0,4); (8,4).

What is the area of the triangle?

units ²

B7. Everyone in my class of 30 donates 1p to charity on Monday and then donates double the amount of the previous day, for the whole week, up to and including Friday. How much will the class donate to charity, in total, that week?

A15. Two athletes, Sarah and Toby, run in opposite directions round a 400m running track. Sarah runs clockwise at 3m/s and Toby runs at 5m/s in the opposite direction. After how long will they pass each other?

A8. I always leave for school at 8:00. If I walk at 2km/h I am 15 minutes late, if I walk at 4km/h I am 15 minutes early. What time does school start?

B15. I went with my 4 friends to the cinema. When we got home, I told my mum that the numbers of our tickets were different prime numbers, that my ticket was 19, and the sum of all our five numbers was 55. As soon as I also told her that none of my friends had 'unlucky' 13, my mum was able to work out what their ticket numbers were.

What were the ticket numbers of my four friends?