



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.

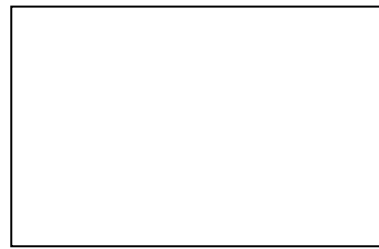
**A1** What is the answer if you multiply the number of degrees in a triangle by the number of sides of a triangle, and then divide by the number of faces of a cube?



**B8** A farmer stacks his bales of straw in the shape of a cuboid. Each bale is 1m long and 50cm high and 50cm wide. What is the number of bales needed to make a  $2\text{m} \times 2\text{m} \times 2\text{m}$  cube?



**B1** Peter was very excited when he noticed a sale was being advertised in the local computer software shop. All the marked prices were reduced by 25%. Peter wanted a game that was marked at £11.40 before the sale. How much is the sale price?



**A9** I have nineteen books that weigh on average 300g. I add two more books that together weigh 663g. What is the new average weight?



**A2** An advert for computer games is offering “Fight the Sums” at £45. Jane is keen to buy it, but has only saved £32. She now saves £3 a week. How many weeks will it take to save enough to buy the game?



**B9** I want to put five different digits, chosen from 1, 2, 3, 4, 5, 6, 7, 8, 9, in these boxes, with one digit in each box, so that they are increasing from left to right, and their total is 19.



In how many ways can I do this?



**B2** The difference between each successive term in the following sequence is the same:

One and a half; two and a quarter; three; three and three quarters; ... ..

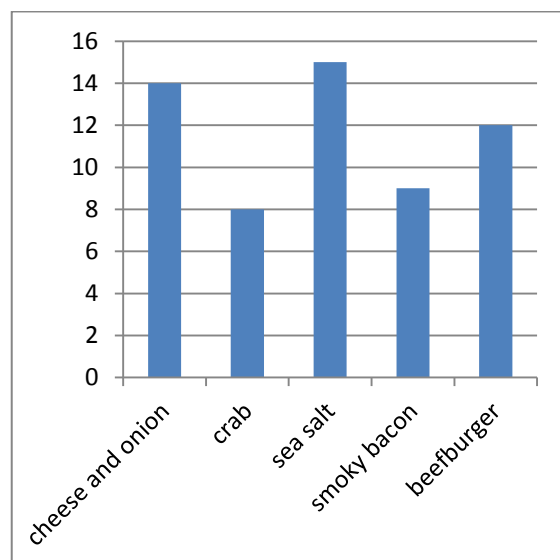
What are the next two terms in this sequence?

(Answers may be given in words or using digits)

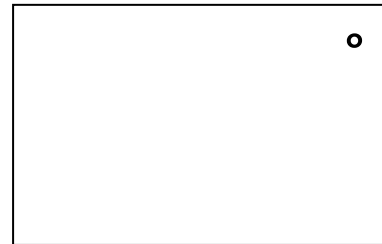
**A10**

Year 6 held a survey of favourite snack flavours and put the results on a chart.

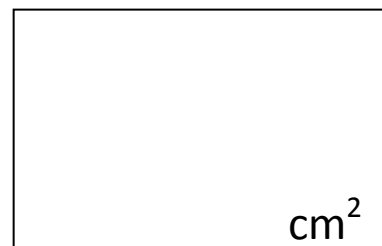
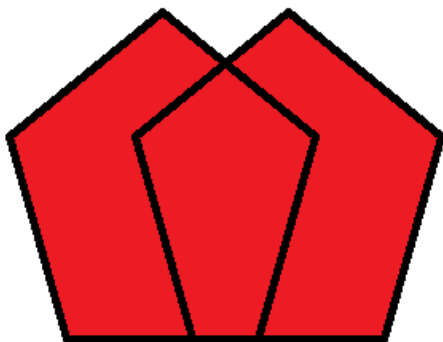
What is the mean of the number of pupils that preferred each flavour? Give your answer to the nearest whole number.



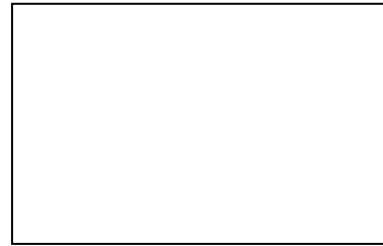
**A3** How many degrees are there in each interior angle of a regular hexagon?



**B10** A shape is made from two identical pentagons as shown. The area of each pentagon is  $45\text{cm}^2$ . The area of the overlap is one-third of the area of one of the pentagons. What is the area of the shape?



**B3** What is the answer if you add the number of faces of a cylinder to the number of faces of a cube, and then multiply the result by the number of faces of a square based pyramid?



**A11** Identical stone slabs were delivered for the ornamental patio. They were twice as long as they were wide. Two were placed in the middle and then six were arranged around these two to form a square.



Each slab is 1.5 metres long. What is the perimeter of the square?

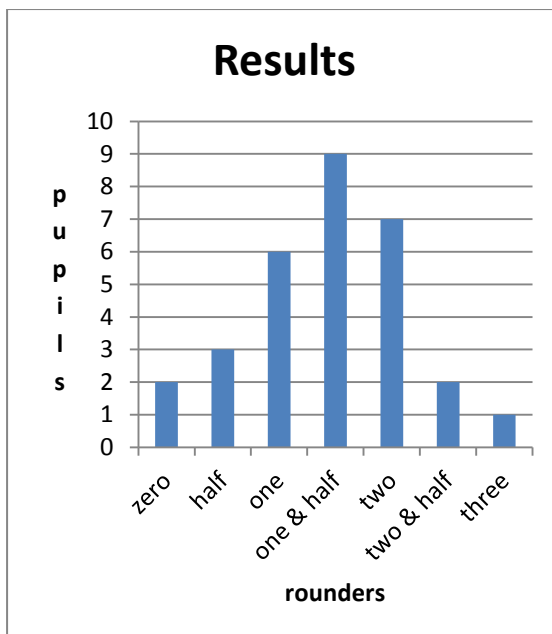


**A4** On the menu of our local café all the toasted sandwiches were £6.75. For an extra £1.00 you can add a cup of soup.

Six friends all ordered toasted sandwiches and two of them also had the cup of soup.

What was the total amount paid by the six friends?

**B11**



After the Year 6 Rounders match the pupils recorded the number of rounders they scored on a chart. How many Year 6 pupils took part?



**B4** A farmer takes his two sheepdogs into the field to help him count all his sheep. The field contained twenty ewes with their lambs. 40% of the ewes had twins and the rest only had one lamb. How many legs were in the field?

*Note: all the creatures have the normal number of legs.*



**A12** There were thirty hens in the barn. The farmer left them for three days. When he went into the barn to collect the eggs he noticed that there were two and a half eggs on average for each hen. How many eggs were there?



**A5** I want to put five different digits, chosen from 1, 2, 3, 4, 5, 6, 7, 8, 9, in these boxes, with one digit in each box, and that they are increasing from left to right, and their total is 20.

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In how many ways can I do this?

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**B12** Pyea has eight books on a shelf weighing:

240g	215g	215g	400g	260g	195g
185g	140g				

The most the shelf can safely hold is 2kg. Pyea wants to add one more book. What is the maximum weight of a book she could safely add to the shelf?

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kg

**B5** This is part of a cafe menu:

Sandwiches:	Beef	£6.75
	Brie and Tomato	£6.25
	Tuna Mayonnaise	£6.50
	Chicken	£6.95
	Smoked Salmon	£7.95

A man orders *Tuna Mayonnaise* and *Chicken*. A woman orders *Beef* and *Smoked Salmon*.

What is the difference in the cost of the two orders?

**A13** A shape is made from a triangle by cutting out a quarter of it. A copy of the remaining shape is made. The two identical shapes are then stuck together, without any overlap, to form the shape as shown.



The original shape had an area of  $120\text{cm}^2$ . What is the area of the new shape?


  
cm<sup>2</sup>

**A6** The difference between each successive term in the following sequence is the same:

Four and a half; four and one sixth; three and five sixths; three and a half; .....

What are the next two terms in this sequence

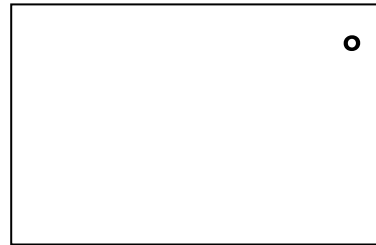
(Answers may be given as words or using digits)



**B13** Mrs Prism was pleased to see that all her 140 ducks had laid three eggs each. 15% of the eggs are too small to sell. How many eggs can Mrs Prism sell?



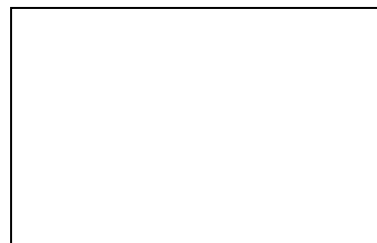
**B6** How many degrees are there in each interior angle of a regular pentagon?



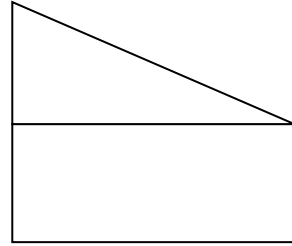
**A14** Calculate the value of

$$5\frac{3}{8} + 2\frac{1}{4}$$

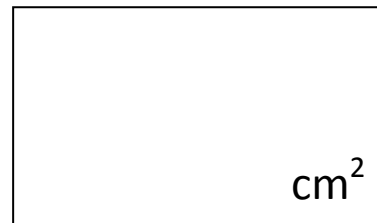
Give your answer to this addition sum as a mixed number.



**A7** The triangle in the diagram is 8cm high and the rectangle is 12cm by 8cm.

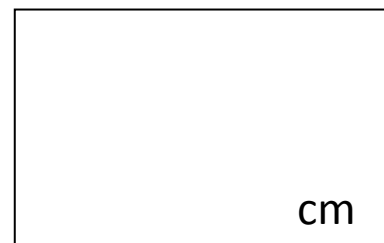


What is the whole area of this shape?

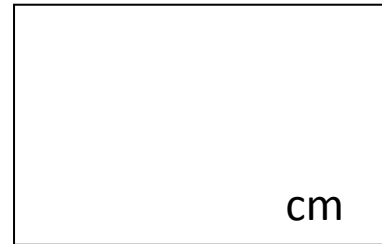


**B14** Meera is putting up a display of her work. She wants to mount all her work on card. She needs to cut 6 pieces of card, each 24cm by 16cm, from one large sheet of card.

What is the perimeter of the smallest size square card Meera can use to cut out her 6 pieces?



**B7** Zeena decided to decorate a box for her mother to give as a present. The box was 6cm by 5cm and 5cm high. Zeena's sticky back plastic sheet is 18cm by 10cm. She decides not to have any overlap. What is the area of the part of the sheet that she does not use?



**A15** Find the sum of all the square numbers less than 100.



**A8** Bert noticed that 40% of the T-shirts on the market stall were navy or black and of these only a quarter were black. There were 200 T-shirts on the stall. How many were navy?



**B15** Calculate the value of

$$5\frac{3}{4} - 2\frac{3}{8}$$

Give your answer to this subtraction sum as a mixed number.

