



Name:.....

The Leys School Cambridge

13+ Scholarship Examination 2026

MATHEMATICS

Time allowed: 60 minutes

Instructions

- Write your name in the box at the top of this page
- You have 60 minutes to complete this test
- Calculators are **not** allowed
- Show your working in the space provided
- Follow the instructions for each question carefully
- If you cannot do a question, go on to the next one and try again later on
- Do not ask the teacher to explain a question to you
- If you finish before the end, check your answers and then wait quietly in your place
- It is not a requirement to answer all the questions in the time allowed, just try your best
- If you do not finish, or if you cannot understand all the questions, do not worry.

Mark / 52

Percentage

1. A square piece of card has perimeter 32cm. Charlie cuts the card into two rectangles, A and B. The perimeter of rectangle A is 22cm. What is the area of each of the two rectangles?

Area of A:

Area of B:

[4]

2. Complete the magic square so that they have the same row, column and diagonal totals.

11		
	4	16
		- 3

[5]

3. In a Mathematics school students can choose to study Algebra, Geometry or Statistics. If you study Algebra you cannot study Statistics. At the end of the term each student will sit an exam in the subjects they study. The Mathematics school has 80 students.
- i. In total 31 students take Algebra.
 - ii. In total 43 students take Geometry.
 - iii. In total 22 students take Statistics

The same number of students will sit both Geometry and Statistics as will sit Geometry and Algebra.
How many students will take two exams?

4. Here is a sequence of patterns made with grey and white squares.



pattern number 1



pattern number 2



pattern number 3

- a. Write down the number of **white** squares needed for pattern number 4.

Answer [1]

- b. Write down the number of **grey** squares needed for pattern number 4.

Answer [1]

- c. Find an expression, in terms of n , for the number of **squares** in pattern n .

Answer [2]

- d. One of the patterns in the sequence uses 55 **grey** squares.
Work out the number of **white** squares that are in this pattern.

Answer [3]

5.

a. At a zoo, they have a big cats section containing only tigers and lions.

The ratio of tigers to lions is 3:4

The ratio of lions to crocodiles is 5:7

What is the ratio of big cats to crocodiles at the zoo?

Answer [2]

b. Tabby has a bottle fully filled with 2 litres of water. She drinks 30% of this.

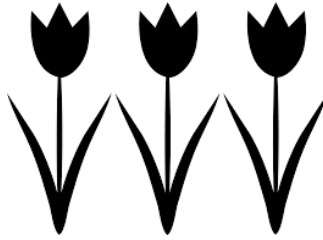
She then drinks a further 40% of what remains.

Finally, she spills 40 ml.

Showing your working, work out what percentage of the bottle is now full.

Answer [3]

6. Melania plants a large number of tulip bulbs. When they flower, she notes that two thirds are red; three quarters of those which are not red are blue; and one half of those which are neither red nor blue are white. The remainder are black. What fraction of the tulips are black?



Answer [2]

7.

a. The mean of the set of numbers 8, 4, 5, 4, ,  and 6 is 6.

If another  is added to the set, then the mean is still 6.

What numbers do  and  represent?

Explain your method clearly.

Answer  =  = [4]

b. The mean of three numbers x , y and z is x .

What is the mean of y and z ?

Explain your method clearly

Answer [3]

8. The factorial function is defined as follows:

$$n! = n \times (n - 1) \times (n - 2) \times \dots \times 1$$

E.g. $4! = 4 \times 3 \times 2 \times 1 = 24$

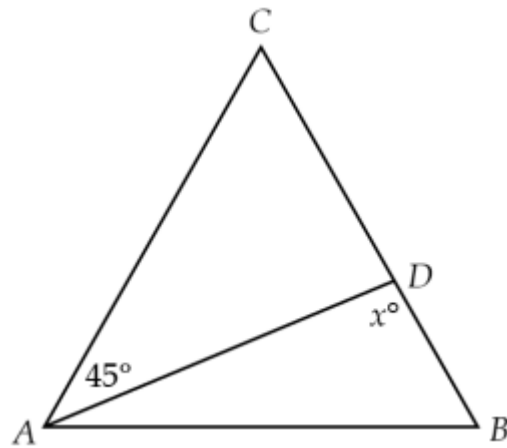
Determine the value of:

$$\frac{5!}{9!} \times \frac{11!}{4!}$$

Explain your method clearly.

..... [3]

9. The triangle ABC shown below, is equilateral.
Diagram is not drawn to scale.

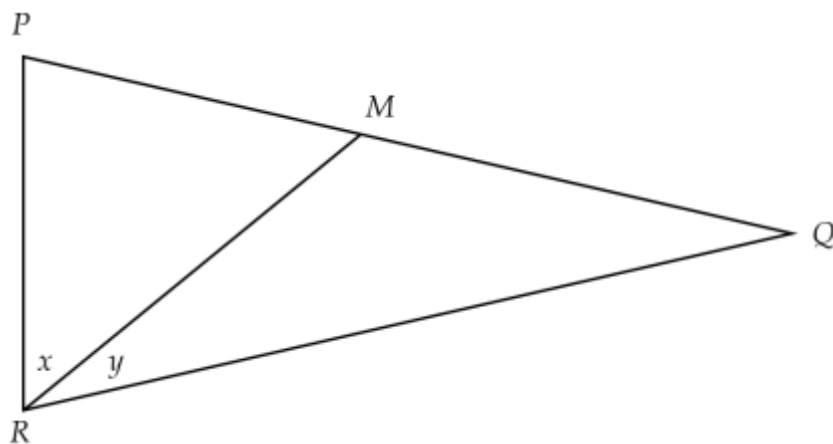


The angle CAD is 45° .
Find x , the angle ADB.
Explain your method clearly.

Answer [3]

10. The triangles PQR, MQR and MPR are all isosceles, as shown below.

Diagram not drawn to scale.



The sides $PQ = QR$, $PM = PR$ and $MR = MQ$.
As shown, the angles $PRM = x$ and $MRQ = y$.

- a. By considering the angle QMR, find an equation for x in terms of y .

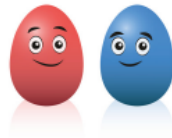
Answer $x = \dots\dots\dots$ [3]

- b. Hence, calculate the value of x , leaving your answer as a fraction.

Answer $\dots\dots\dots$ [2]

11. Consider the following problem.

Andy and Sarah are playing Magnificent Egg Hunt on their computer.



The aim is to collect Blue and Red eggs.

Blue eggs are worth more points than Red eggs.

In one such game:

- Andy collects one Blue and seven Red eggs and scores 28 points.
- Sarah collects five Blue and two Red eggs and scores 41 points.

Work out how many points each Blue and each Red egg is worth.

You should show full mathematical working.

Answer: Blue =points Red =points [5]

End of Paper