North London Collegiate School

Founded 1850

11+ Examination

Time allowed: 1 hour 15 minutes

First name: …………………………………………………………………..

Last name: …………………………………………………………………...

Candidate number: …………………………………………………………...

- Write all of your work in the spaces provided.
- You may write in pen or pencil.
- Calculators are NOT allowed.
- Write your answers on the lines provided. If you have to change an answer, cross out the old answer and underline your new answer.
- If you cannot do a question, <u>move on</u> and come back to it later.
- You may get some marks for incomplete answers if the working out is clear.
- Do not worry if you do not complete the entire paper.

1 Fill in the blanks with one number:

(a) $1002 - 997 = \underline{\hspace{2cm}}$

(b) $53 + 27 = \underline{\hspace{2cm}} \times 5$

(c) $\underline{\hspace{2cm}} \div 4 = \dfrac{1}{10} \times 5$

(d) $0.8 + \dfrac{1}{10} + 0.1 = \underline{\hspace{2cm}}$

2 (a) Write the following numbers in order from smallest to largest.

$4.49, \quad \dfrac{9}{2}, \quad 4.499, \quad 4.51, \quad 4.501$

Answer: ……., ……., ……., ……., …….

(b) You are given the numbers 1 to 6. Put one number in each space in the subtraction below so that the answer is as large as possible, and calculate the answer.
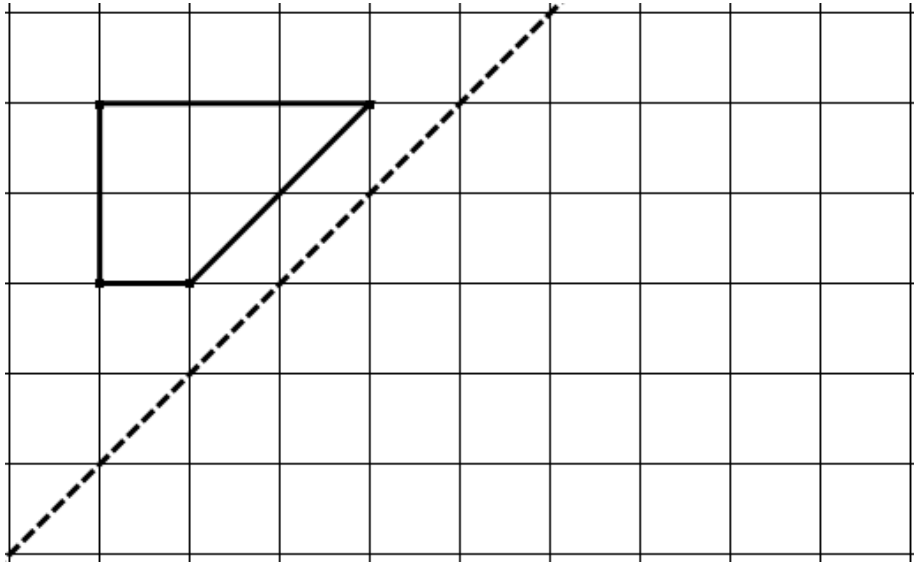
$\underline{\hspace{1cm}}\ \underline{\hspace{1cm}}\ \underline{\hspace{1cm}}\ -\!-\ \underline{\hspace{1cm}}\ \underline{\hspace{1cm}}\ \underline{\hspace{1cm}}\ =$

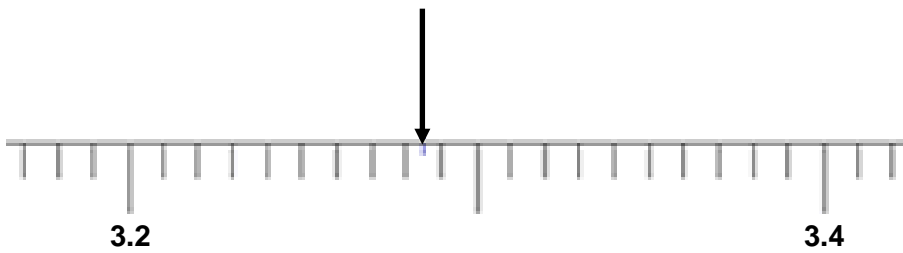(c) You are given that 43 x 43 = 1849

What is 4.3 x 4.3?

Answer: .…………………………………

3   Draw the reflection of the following shape in the dotted mirror line.

4   The arrow below is pointing exactly halfway between the two marks either side of it. What number is the arrow pointing to? Give your answer as a decimal and do not round it.

3.2   **3.4**

Answer: ……..…………………………………

5   Fill in the missing numbers which make these statements correct.

$$\frac{15}{20} = \frac{\square}{4} = \frac{\square}{16}$$

$$\frac{18}{60} = \frac{3}{\square} = \frac{15}{\square}$$

$$\frac{30}{72} = \frac{\square}{48}$$

6 It takes 2 robots 3 hours to build a wall which is 1.5 m long.

(a) How long does it take 2 robots to build a wall which is 9 m long?

Answer: ...……………………………………

(b) How many robots does it take to build a 1.5 m wall in 6 hours?

Answer: ...……………………………………

7 Write down the smallest number which is not only an even number but also a multiple of 5 and a square number.

Answer: …...……………………………………

8 Ms Santiago has three different colours of pen: blue, red and green. The ratio of blue to red pens in 4:5 and the ratio of red to green pens is 7:10. What is the ratio of blue to green pens?

Answer: …...……………………………………

9 Lucy is at a sweet shop buying sweets to share with her friends.
She buys 7 packets of chocolate buttons each costing 56p.

(a) How much does she spend on chocolate buttons in total?

Answer: ……..……………………………

(b) In total, Lucy discovers that she has exactly 168 chocolate buttons.
How many chocolate buttons are there in each bag?

Answer: ……..……………………………

(c) Shreya is also at the sweet shop. She buys 13 caramel bars. She pays with a £20 note
and gets £11.81 change. How much does each caramel bar cost?
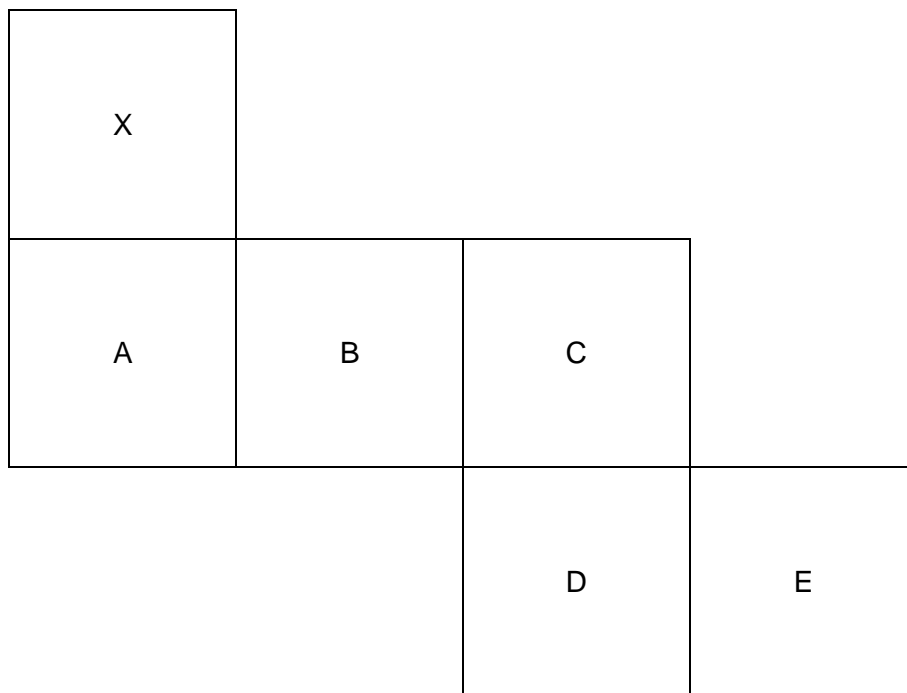
Answer: ……..……………………………

**10** A shape is created by sticking 6 identical cubes to the faces of a seventh cube, as shown in
the picture below.
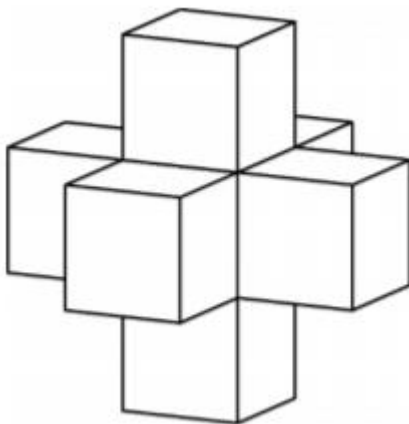
The volume of this shape is 189 cm³.
What is the length of each smaller cube?

Answer: .…………………………………

11 The net shown here is cut out and folded to make a cube.

X

A   B   C

D   E

Label the following net with the letters A, B, C, D and E so that when it is cut out and folded it makes exactly the same cube as before.

X
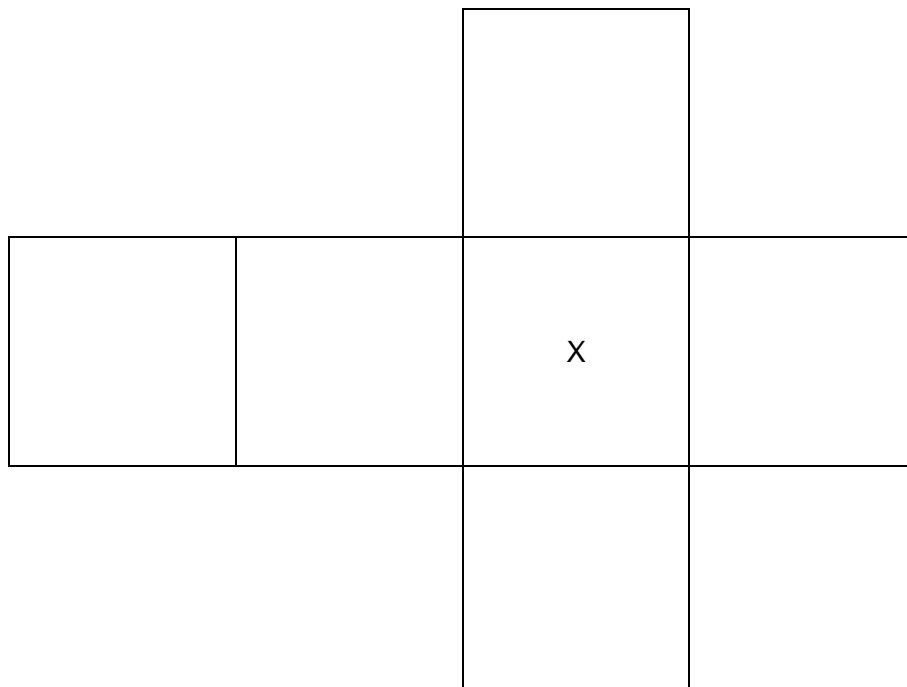
12   Lina has some beads.
If Lina arranges them into piles of 7, there is one bead left over.
If Lina arranges them into piles of 9, there are three beads left over.
How many beads does Lina have?

Answer: ..……………………………………

13   At a garden party there are 7 trays of sausages with a mean average of 13 sausages per tray. Just before the guests are allowed in, the head chef brings out another tray containing 21 sausages. What is the mean average number of sausages on the trays now?
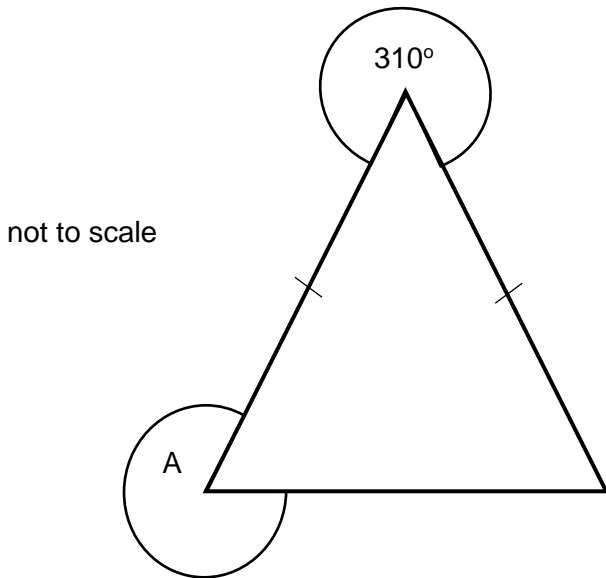
Answer: ..……………………………………

14   A concert hall has sold 60% of its tickets for a particular night. 28 tickets remain unsold. How many people can the concert hall hold in total?

Answer: ..……………………………………

15 Over the summer, the hedge in my garden increased its height by a quarter. What fraction of the hedge do I need to cut away for it to be brought back to its original height?

Answer: ...……………………………………

16 An isosceles triangle is shown below. What is the angle labelled A?

not to scale

310°

A

Answer: ...…………………………………

17   Angela, Bernice and Candice all buy gummy bear sweets at 6 pence each.
Angela buys two more gummy bears than Bernice.
Bernice buys eight more gummy bears than Candice.
Together the three girls spend £3.42 on gummy bears.
Work out how many gummy bears Angela buys.

Answer: Angela buys ……...gummy bears

18 In a village that uses an old bartering system, 3 chickens have the same value as 1 pig, and 8 pigs have the same value as 1 cow.

(a) How many cows would you need to buy 24 pigs?

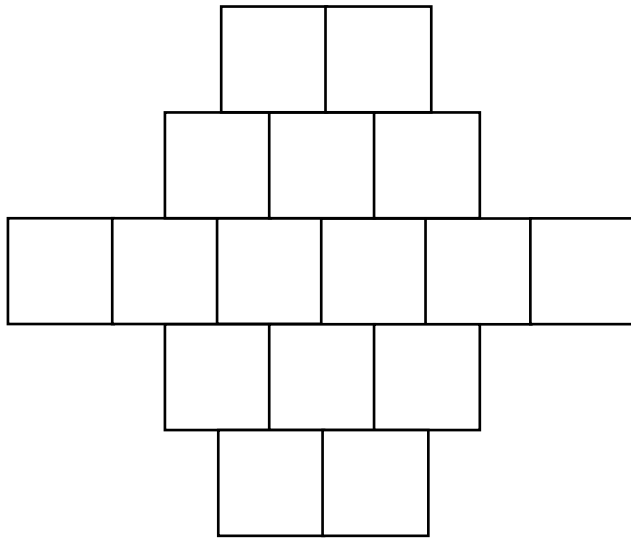Answer: ..………………………………………

(b) How many chickens do you need to buy 7 cows?

Answer: ..………………………………………

(c) I have 21 chickens and 10 pigs but decide to try and swap everything for some cows. How many cows can I get, and what do I have left over?

Answer: ..………………………………………

19 How many squares need to be shaded in the diagram below so that the number of shaded squares is equal to $\frac{3}{5}$ of the number of squares which remain unshaded?

Answer: ……..squares need to be shaded

20 Beth caught the train from London to Leeds. It arrived in Leeds 5 minutes late. This wasn't too bad as it had left London 15 minutes late. The journey took $\frac{11}{12}$ of the time it should have done. How long should the journey have taken?

Answer: ..……………………………………

21 At a particular music school, 70% of all the pupils play the violin and 80% of all the pupils play the piano. The headmistress wonders, "What percentage of all the pupils play both the violin and the piano?"

(a) What is the largest possible answer to the headmistress's question?

Answer: ..……………………………………

(b) What is the smallest possible answer to the headmistress's question?

Answer: ..……………………………………

22 Even when the camel Charlie is thirsty, 84% of his weight is due to the water in his body. After he drinks, his weight increases to 800 kg and 85% of it is now due to the water in his body.
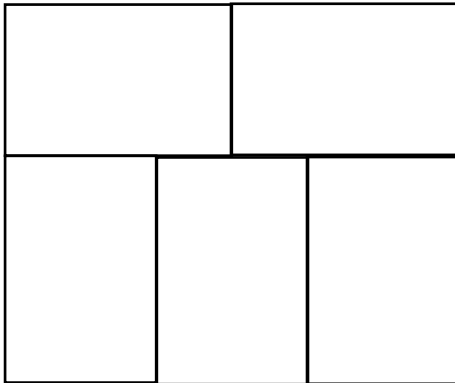
(a) What is the weight of Charlie which is not due to the water in his body?

Answer: ..……………………………………

(b) What is the weight of Charlie when he is thirsty?

Answer: ..……………………………………

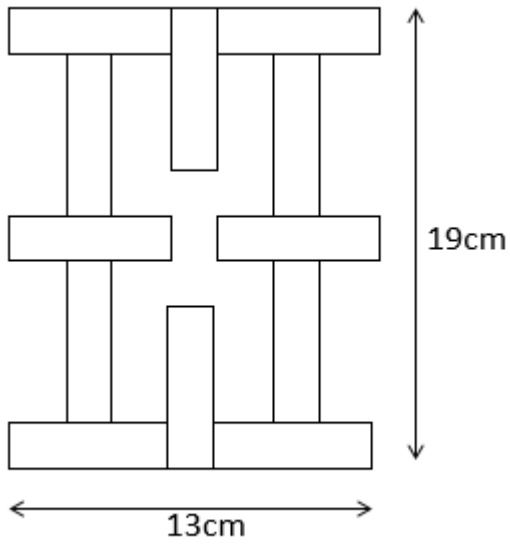**23** Five identical small rectangles fit together as shown to form one large rectangle.
The height of the large rectangle is 10 cm.
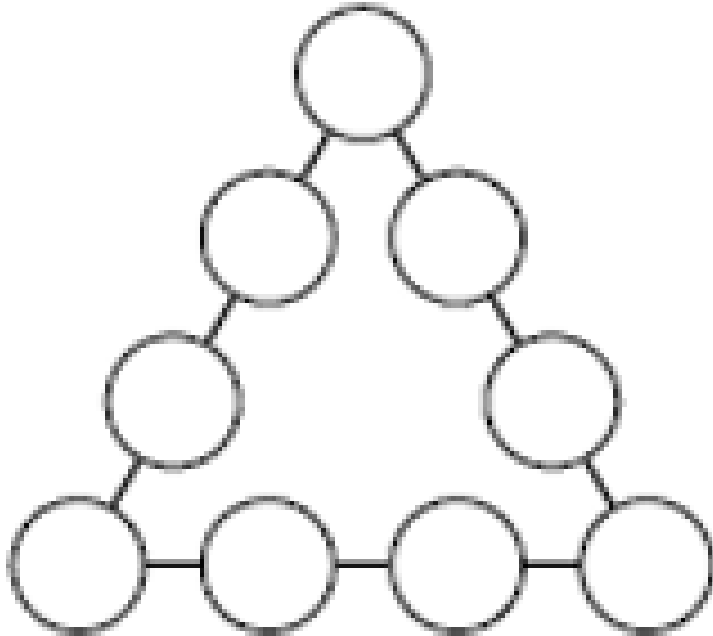What is the area of the large rectangle?

Answer: ..……………………………………

24 A number of identical rectangles are laid out as shown below. Find the perimeter of a rectangle given the information in the following diagram.

Answer: ..……………………………………

25   Circles have been placed along the three sides of a triangle as shown below. Write a digit from 1 to 9 in each of the circles so that the total of the four digits along any side is the same. Each digit from 1 to 9 should be used exactly once. Use a pencil so that you can rub out any incorrect attempts.

END OF PAPER