

Name: \_\_\_\_\_ Candidate Number: \_\_\_\_\_

**City of London School**

**SPECIMEN 10+ ENTRANCE EXAMINATION  
MATHEMATICS**

**GROUP 1 TIME: 45 minutes**

**Answer as many questions as you can in the spaces provided.**

**Show all your working clearly.**

**Be careful not to spend too long on any one question.**

**You will need a ruler and pencil (or pen).**

**No calculators are allowed.**

**No spare paper will be provided.**

1. a) Write down all the whole numbers you can find which will divide exactly into 36:

\_\_\_\_\_

- b) Which two numbers multiply to give you 36 but add to give you 13?

\_\_\_\_\_

- c) Which two numbers multiply to give you 36 but have a difference of 9?

\_\_\_\_\_



2. Work out

a)

$$\begin{array}{r} 748 \\ + 597 \\ \hline \end{array}$$

b)

$$\begin{array}{r} 695 \\ - 458 \\ \hline \end{array}$$

c)

$$\begin{array}{r} 86 \\ \times 7 \\ \hline \end{array}$$

3. Fill in the missing spaces in the following patterns

a) 14, \_\_\_\_\_, 28, 35, \_\_\_\_\_

b) 17, 14, \_\_\_\_\_, 8, \_\_\_\_\_

c) 0.5, \_\_\_\_\_, 2, \_\_\_\_\_, 8, 16

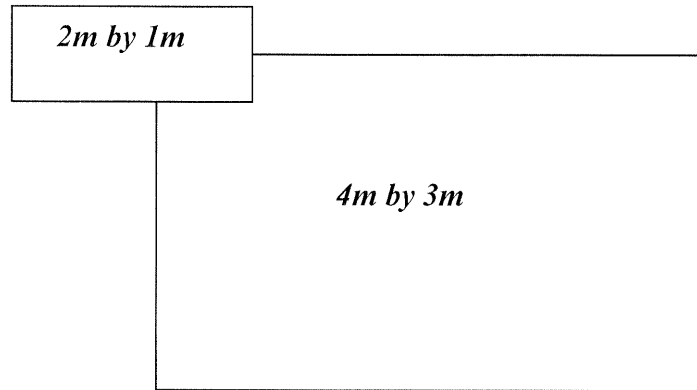
d) 256, 64, \_\_\_\_\_, 4, 1, \_\_\_\_\_

4. Sarah buys 15m of dress material. She uses 4.39m on her dress, 3.44m on her skirt, 47 cm on a scarf and 4cm on a ribbon.

How many centimetres of material will she have left?

\_\_\_\_\_ cm

5.



The diagram shows a small rectangle of 2m by 1m and a large rectangle of 4m by 3m. They are not drawn to scale.

a) How many of the small rectangles will fit into the larger one?

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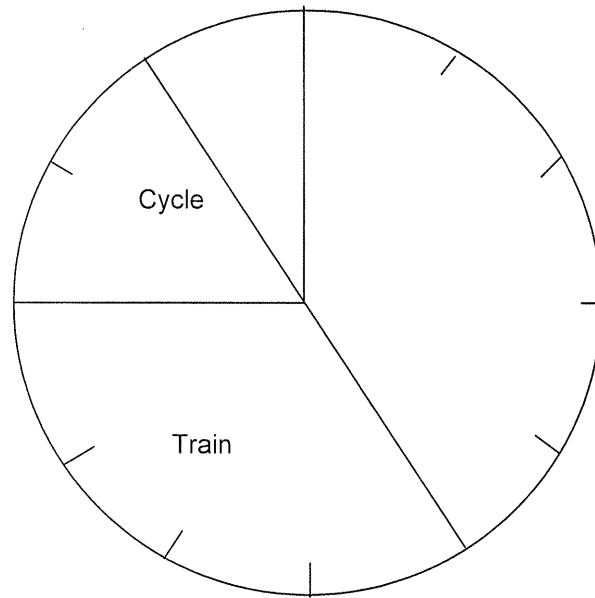
b) The larger rectangle is now stretched to fit 9 small ones into it. The length of 3m is kept the same.

How much longer must we make the other side?

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6. In a class of 24 boys 2 walked to school  
4 cycled  
a larger number travelled by train  
the London Underground was the most popular  
form of transport



The pie-chart shows this information but it is not complete.

Write in the other two forms of transport.

- a) How many boys travelled by train?

\_\_\_\_\_

- b) How many boys used the London Underground?

\_\_\_\_\_

- c) What fraction of the boys cycled to school?

\_\_\_\_\_



7. Copy these words as they would look on the other side of the mirror. Three of the letters have been done for you.

Mirror

C	I	T	Y								T		
O	F											O	
L	O	N	D	O	N								
S	C	H	O	O	L						O		

8. 4, 5, 6 are consecutive numbers. Their sum is 15 and they multiply to give 120.

a) Find three consecutive numbers which have a sum of 60.

\_\_\_\_\_

b) Find three consecutive numbers which multiply to give 60.

\_\_\_\_\_



9. Fill each space with a figure that will make the answers correct

a)

$$\begin{array}{r}
 \square \quad 8 \quad 7 \\
 + \quad 6 \quad \square \quad 6 \\
 \hline
 8 \quad 1 \quad \square
 \end{array}$$

b)

$$\begin{array}{r}
 \quad 5 \quad 4 \quad \square \\
 - \quad \square \quad 8 \quad 7 \\
 \hline
 2 \quad \square \quad 9
 \end{array}$$

c)

$$\begin{array}{r}
 \square \quad 7 \\
 \times \quad \square \\
 \hline
 1 \quad 1 \quad 9
 \end{array}$$

10. a) i) What fraction of a day is 6 hours?  
Simplify your answer as much as possible.

\_\_\_\_\_

ii) What fraction of a 7 day week is 6 hours?  
Simplify your answer as much as possible.

\_\_\_\_\_

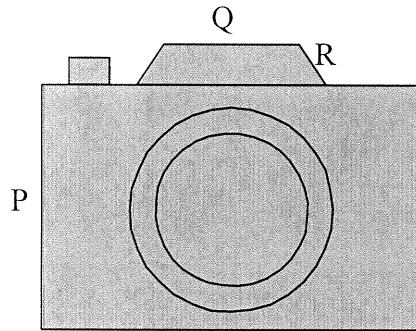
b) An examination is to last 1 hour 15 minutes.  
It starts at 11.27am.

When does it finish?

\_\_\_\_\_

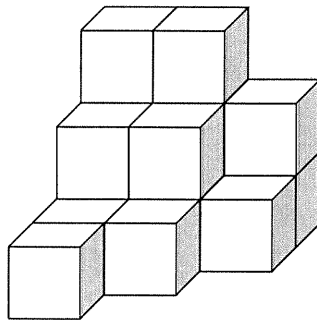


11. Use your ruler to measure in centimetres the lengths of the lines marked P, Q and R.



P = \_\_\_\_\_                      Q = \_\_\_\_\_                      R = \_\_\_\_\_

12.



The shape above is made up of 2cm cubes loosely stacked in a corner of a room.

a) How many cubes are there?

\_\_\_\_\_

b) How many more would you need to make a 10cm by 10cm by 10cm cube?

\_\_\_\_\_



13. a) Paul wants to give a present of one stamp, one coin and one sweet to Mark. Paul has two different stamps, two different coins and two different sweets to choose from. How many different ways can he make up the present?

\_\_\_\_\_

- b) Paul changes his mind. He decided to give just two coins instead. How many ways could Paul do this?

\_\_\_\_\_

14. Simon concentrates in class for  $\frac{3}{4}$  of the time while Stephen does so for 70% of the time. Samuel concentrates for  $\frac{2}{3}$  of the time and Saul does so for point eight of the time.

- a) Which boy concentrates the most?

\_\_\_\_\_

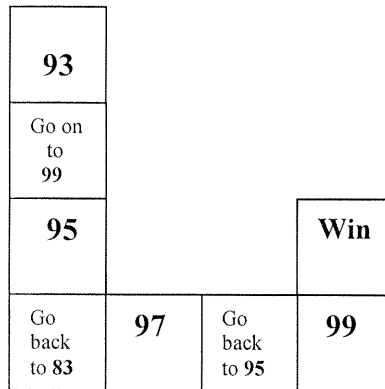
- b) Which boy concentrates the least?

\_\_\_\_\_





15. The diagram below shows the end of a dice game that James was playing. He can throw anything from 1 to 6. To win, his throw must lead him to land exactly on the Win square.



List the ways that James can finish to win in exactly two throws if he is on

a) square **97**

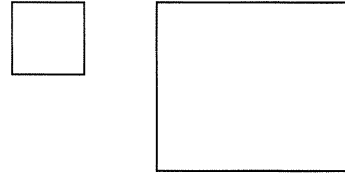
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b) square **93**

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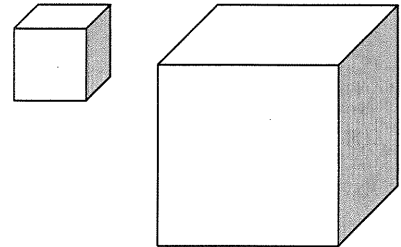


16. a) i) How many small squares of width 2cm can I cut out of a large square of width 4cm?



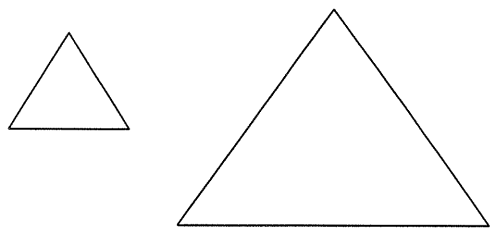
\_\_\_\_\_

ii) How many small cubes of width 2cm can I cut out of a large cube of width 4cm?



\_\_\_\_\_

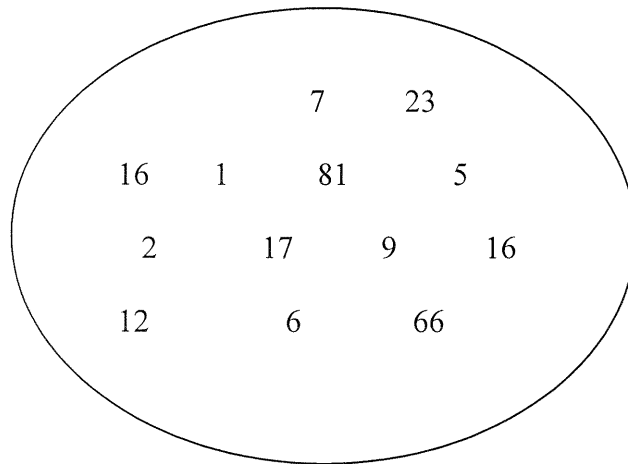
iii) How many small triangles of width 2cm can I cut from a large triangle of width 4cm?



\_\_\_\_\_



17.



a) Which of the numbers above are prime numbers?

\_\_\_\_\_

b) Which of the numbers above are multiples of 3?

\_\_\_\_\_

c) Which of the numbers are square numbers?

\_\_\_\_\_



18. Here is a timetable of a certain space flight:

a)

6.22am          Blast Off

6.37am          Space Craft goes into Orbit

7.41am          First Orbit Completed

The second orbit takes three minutes less than the first.

The third takes two minutes less than the second.

The fourth takes one minute less than the third.

After the fourth orbit the craft falls to earth in 38 minutes.

At what time did the craft

a) Complete the second orbit?

\_\_\_\_\_

b) Complete the third orbit?

\_\_\_\_\_

c) Touch down?

\_\_\_\_\_

19. Find all the three digit numbers for which the sum of the digits equals 25.

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# End of Exam

