Name:_____

Age:_____Yrs_____Mths

Group Number:_____

ST PAUL'S
GIRLS' SCHOOL

FIRST YEAR ENTRANCE EXAMINATION

EXAMPLE

MATHEMATICS

Section A

25 minutes

PLEASE READ THESE INSTRUCTIONS VERY CAREFULLY

Use a pencil. No calculators or protractors or rulers are allowed.

There are 18 questions. Answer all of them if you can.

Show all your working in the spaces provided and write your answers on the lines provided. Use the back pages if necessary.

Please do not rub out your working.

If you cannot do a question, leave it and go on to the next one.
Try again later.

Do not ask a teacher to explain a question to you.

If you finish before the end of 25 minutes go back and check your answers and try to fill in any answers you have left out.

If you do not finish, or if you cannot understand all the questions, do not worry. People work at different speeds.

1. Calculate 623 − 467.

Answer .....

2. Calculate 286 ÷ 13.

Answer .....

3. Calculate 11% of 32600.

Answer .....

4. Order these from smallest to largest:

1.23 1.023 1.203 1.032 1.2 1.32 1.302

Answer ***(smallest first)*** ……, ……, ……, ……, ……, ……, ……

5. My journey to school takes 47minutes. If I set off at 07:32 what time will I arrive at school?

Answer ……

6. Circle the numbers which give 7 when rounded to the nearest whole number.

6.51 7.49 7.51 6.49 6.9 7.9

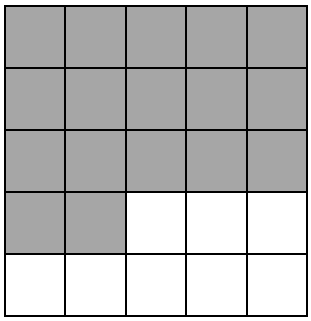
7. Fill in the next three numbers in these sequences:

3, 7, 11, 15, ……, ……, ……

53, 46, 40, 35, ……, ……, ……

1, 2, 4, 8, ……, ……, ……

8. What percentage of the grid below is shaded? You can assume all boxes are identical in size.



Answer ……

9. Calculate $1.1 \times (4.5 + 2.5) - 2$

Answer ……

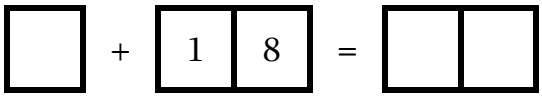
10. 75 students need 3 pens each. Pens are sold in packs of 6. How many whole packs need to be bought?

Answer .....

11. The minute hand on a clock points exactly to the number 7. It is then turned anticlockwise by 240°. What number does it now point to?

Answer .....

12. Each missing digit in the following calculations is either 2, 5 or 7. Fill in each box with one of these numbers. You may use each number more than once.







13. Julia thinks of a number. She multiplies it by 5 and then subtracts 14. The answer she gets is 46. What number did she originally think of?

Answer .....

14. Which whole number when multiplied by itself will give an answer between 190 and 200?

Answer .....

15. Which number between 81 and 89 is exactly divisible by 6?

Answer .....

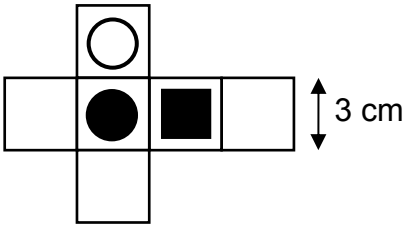
16. Freya has 24 badges. If she gives $\frac{3}{8}$ of them to her brother, how many does she have left?

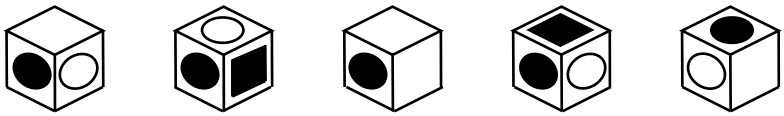
Answer .....

17. A rectangular room is twice as long as it is wide. The perimeter of the room is 36m. What is the length of the room?

Answer ……**m**…

18. This cardboard shape is cut out and folded into a cube. Circle the cube which could not be formed by this shape.





END OF SECTION A. NOW GO BACK AND CHECK YOUR ANSWERS.

Name:_____
Age:_____Yrs_____Mths

Group Number:_____

ST PAUL'S
GIRLS' SCHOOL

FIRST YEAR ENTRANCE EXAMINATION

EXAMPLE

MATHEMATICS
Section B

25 minutes

PLEASE READ THESE INSTRUCTIONS VERY CAREFULLY

Use a pencil. No calculators or protractors or rulers are allowed.

There are 12 questions. Answer all of them if you can.

Show all your working in the spaces provided and write your answers on the lines provided. Use the back pages if necessary.

Please do not rub out your working.

If you cannot do a question, leave it and go on to the next one. Try again later.

Do not ask a teacher to explain a question to you.

If you finish before the end of 25 minutes go back and check your answers and try to fill in any answers you have left out.

If you do not finish, or if you cannot understand all the questions, do not worry. People work at different speeds.

1

You are told that 56% of the pupils in a class are girls.

What is the smallest number of pupils the class could contain?

Answer .....**pupils**

2

Fence posts are erected 5m apart (with a post at each corner) to support fencing round a rectangular field.

If the field measures 100m by 60m, how many posts are needed?

Answer .....**posts**

3

A boy spent 3/8 of his allowance and put 1/2 of the remainder in the bank . He then had £15 left.

How much money did he have to start with?

Answer £.....

4

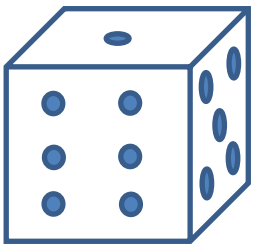
A carpet measuring 4m by 3m covers 60% of the floor area in a rectangular room.

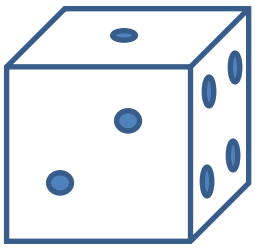
What is the width of the room if the length is 5 m?

Answer .....**m**

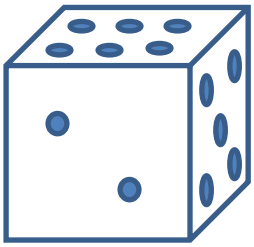
5

Here are two views of the same cube:

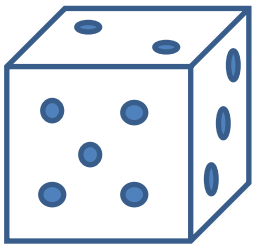
A 

B 

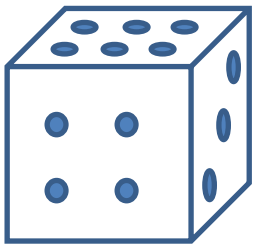
Which of the views below show the same cube as in A and B?

C 

Same ☐
Different ☐

D 

Same ☐
Different ☐

E 

Same ☐
Different ☐

6

Bill sold his motor scooter to Tom for £120. After driving it for a few days, Tom discovered it was in such a broken-down condition that he sold it back to Bill for 30% less than he paid. The next day Bill sold it to Jack for £90. What is Bill's profit on the final sale?

Answer £.....

7

a) At a railway station there are two platforms. At one platform, trains leave every 24 minutes and at the other every 30 minutes. If trains leave both platforms at 9 a.m., what time is it when trains next leave both platforms at the same time?

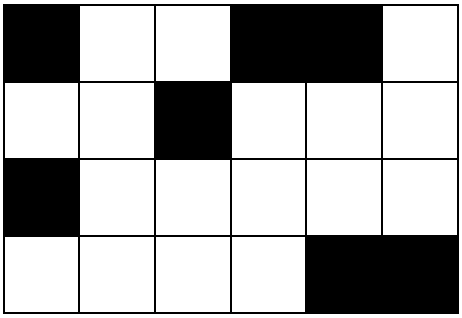
Answer .....

b) A train takes 3 hours 40 minutes to travel from York to London. It arrives at 18:00 having been delayed by 45 minutes. At what time did it leave York?

Answer .....

8

The diagram shows a patio made up of square concrete slabs. The shaded ones are cracked.



a) What fraction of the total number of slabs is cracked?

Answer .....

b) Each slab measures ½ metre by ½ metre. What is the area of one slab, ***in cm²***?

Answer .....**cm²**

c) If it is decided to cement over the cracked slabs, what area, ***in cm²***, needs to be cemented?

Answer ..... **cm²**

9

Look at these numbers and the multiplications:

$$49 = 7 \times 7$$

$$4489 = 67 \times 67$$

$$444889 = 667 \times 667$$

a) Use the pattern to fill in the spaces below:

$$44448889 = \ldots\ldots\ldots\ldots \times \ldots\ldots\ldots\ldots$$



b) What will be the tenth number in the list?

Answer ……



c) What will be the square root of this number?

Answer ……



10

100 aliens attended an inter-species meeting on Mars. 76 of them needed breathing apparatus, 52 needed shaded goggles, but 23 aliens didn't need either.

How many aliens needed breathing apparatus **and** goggles?

Answer ……

11

In imperial units of length, one furlong=10 chains, one chain=22 yards and one yard=3 feet

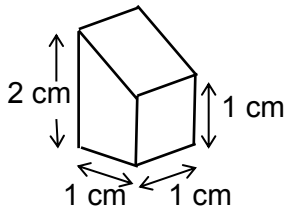
a) Find the total number of feet in 3 furlongs, 2 chains and 5 yards.

Answer ……**feet**

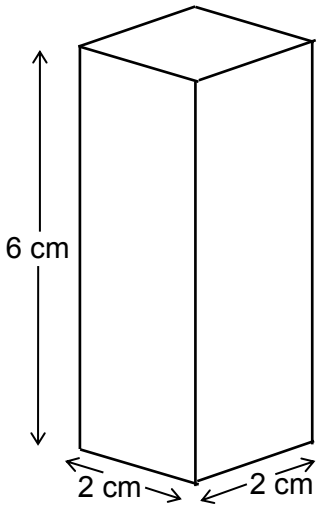
b) Convert 472 feet to chains, yards and feet using as many chains as possible, then yards and then feet.

Answer ……**chains**……**yards**……**feet** 

12



Blocks of this shape are packed into the container on the right. What is the greatest number of blocks that can be placed inside the container?



Answer .....

END OF SECTION B. NOW GO BACK AND CHECK YOUR ANSWERS

Name:_____
Age:_____Yrs_____Mths

ST PAUL'S
GIRLS' SCHOOL

Group Number:_____

FIRST YEAR ENTRANCE EXAMINATION

EXAMPLE

MATHEMATICS
Section C
25 minutes

PLEASE READ THESE INSTRUCTIONS VERY CAREFULLY

Use a pencil. No calculators or protractors or rulers are allowed.

There are 7 questions. Answer all of them if you can.

Show all your working in the spaces provided and write your answers on the lines provided. Use the back pages if necessary.

Please do not rub out your working.

If you cannot do a question, leave it and go on to the next one.
Try again later.

Do not ask a teacher to explain a question to you.

If you finish before the end of 25 minutes go back and check your answers and try to fill in any answers you have left out.

If you do not finish, or if you cannot understand all the questions, do not worry. People work at different speeds.



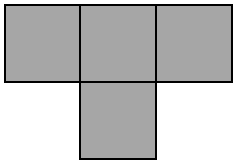
1. Given the following clues, can you work out the number of gold, silver and bronze medals that France, Italy and Japan got in an international sports competition?

a) Japan has 1 more gold medal, but 3 fewer silver medals, than Italy.
b) France has the most bronze medals (18), but fewest gold medals (7).
c) Each country has at least 6 medals of each type, (6 or more).
d) Italy has 27 medals in total.
e) Italy has 2 more bronze medals than gold medals.
f) The three countries have 38 bronze medals in total.
g) France has twice as many silver medals as Italy has gold medals.
h) Italy and Japan have the same number of bronze medals.

Complete the medal table below:

Medal	France	Italy	Japan	Total
Gold	7			
Silver				
Bronze	18			38
Total		27		

2. The T-tetromino is the shape made by joining four 1x1 squares edge to edge, as shown below. A rectangle has dimensions 4a x 4b, where a and b are whole numbers. Prove that the rectangle can be tiled by these T-tetrominoes so that it is covered exactly without gaps or overlaps.



3. It takes 2 men 3 days to build a wall. To answer these questions, assume that all men work at the same rate all the time and take no breaks! You may use fractions, where necessary.

a) How long would it take one man to build the wall?

Answer .....

b) How long would it take one man to build 6 such walls?

Answer .....

c) How long would it take 3 men to build 6 such walls?

Answer .....

d) How long would it take 10 men to build 6 such walls?

Answer .....

e) How long would it take 10 men to build x such walls?

Answer .....

f) How long would it take y men to build x such walls?

Answer .....

4. (a) A sequence starts 4,16,…….. Each term is 4 times the term before.

Write down the next five numbers in the sequence.

……

Which of the following could not be numbers in this sequence?

a. 23468
b. 12986
c. 23232
d. 65536
e. 98340

Give reasons for your answer(s).

(b) The first two numbers in a sequence are 2 and 4. Each of the following numbers in the sequence is the sum of all the numbers which come before it.
Write down the next five numbers in the sequence.
……

Which of the following could not be numbers in this sequence?

a. 49152
b. 64790
c. 24576
d. 12288
e. 34921

Give reasons for your answer(s).

5. You are reminded that to write the number 135 requires three digits. To write 5056 requires four digits.

What is the total number of digits required to write each of the following sets of numbers?

(a) 1,2,3,4,5,6,7,8,9,10

Answer .....

(b) 10,11,12,13.....up to and including 20

Answer .....

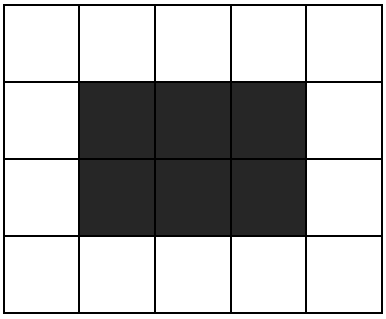
(c) 1,2,3,.....up to and including 100

Answer .....

(d) All the whole numbers from 1 to 1000 inclusive.

Answer .....

6. This pattern of 20 tiles is arranged as 4 rows and 5 columns. The outer tiles around the edge are white and the inner tiles are black.



When I change the number of rows and columns in my pattern I continue to keep the outer tiles around the edge white.

(a) Complete the following table:

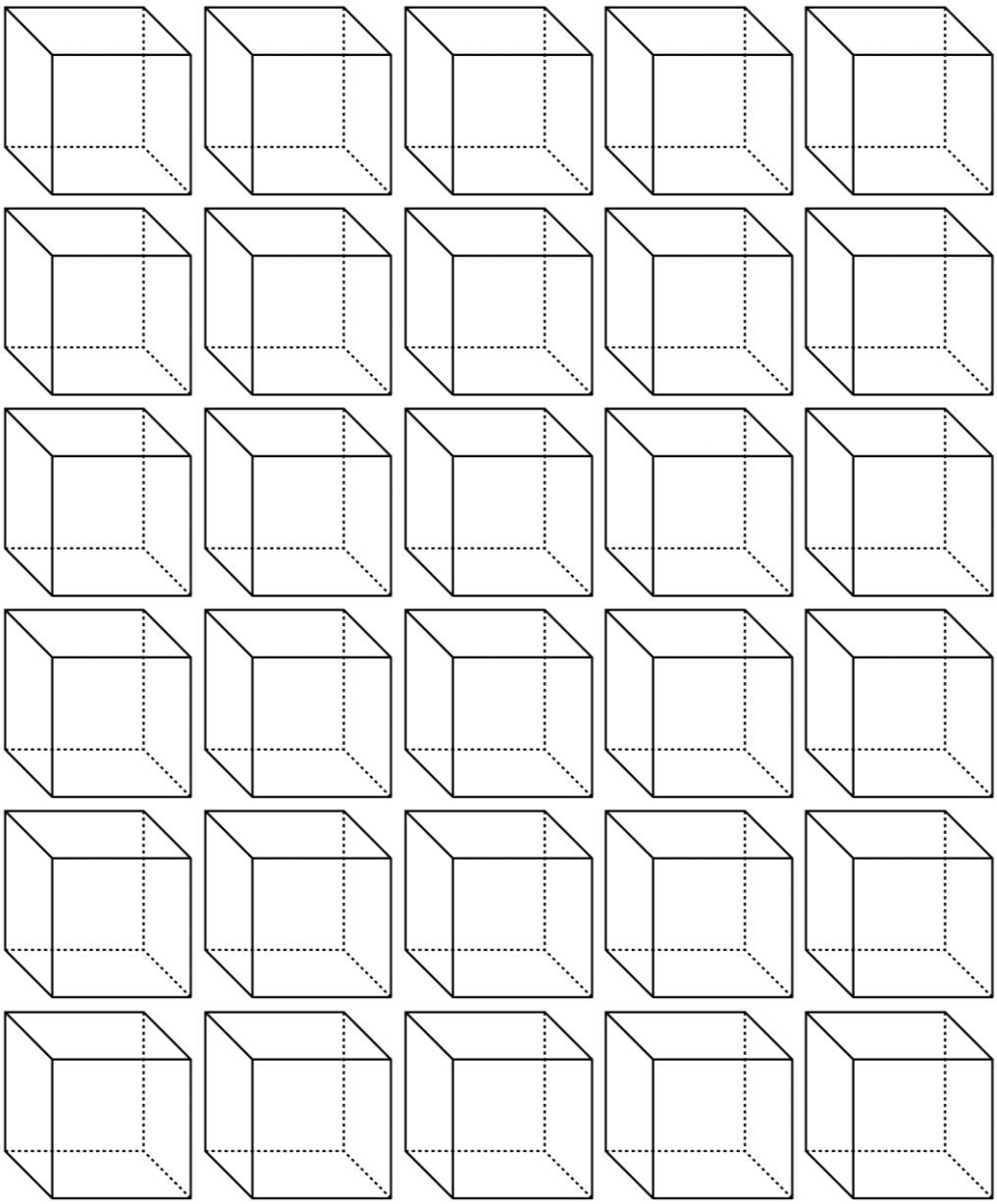
Number of rows	Number of columns	Number of white tiles	Number of black tiles
4	5	14	6
4	6		
8	12		
			5

(b) I have 24 black tiles. What is the smallest number of white tiles I can use to make one of my patterns? Show workings to prove that your answer is the smallest possible solution.

7. Imagine that you have a can of red paint, a can of blue paint and a large supply of wooden cubes, all the same size. You decide to paint the cubes by making each face either red or blue. How many different coloured cubes can you make?

(Two cubes are considered the same if one can be turned so that all its sides match the corresponding sides of the other cube.)

You can use the diagrams below to help.



Answer……cubes

END OF SECTION C. NOW GO BACK AND CHECK YOUR ANSWERS