ST PAUL'S GIRLS' SCHOOL

Name:_____ Age:_____Yrs_____Mths

Group Number:_____

FIRST YEAR ENTRANCE EXAMINATION

MATHEMATICS

Section A

25 minutes

SAMPLE

PLEASE READ THESE INSTRUCTIONS VERY CAREFULLY

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

There are 20 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.

You have 25 minutes to complete this section. There are 20 questions.

1. Write, in the box, the missing numbers:

$\square + 121 = 212$

$6 \times \square = 96$

2. The signs are missing from these number sentences.

Write in the missing signs $+, -, \times$ or $\div$, in the circle.

The first has been done for you:

$7 \; (+) \; 9 = 8 \; (\times) \; 2$

$13 \; (\;) \; 5 = 60 \; (\;) \; 5$

$36 \; (\;) \; 4 = 23 \; (\;) \; 14$

3. The sum of two numbers is 250.

Write in the missing digits in the boxes:

$\boxed{7}\boxed{\;} + \boxed{\;}\boxed{\;}\boxed{6} = \boxed{2}\boxed{5}\boxed{0}$

4. Calculate $37 \times 4 \times 5$

Answer.....

SAMPLE

5. Calculate $483 \div 21$

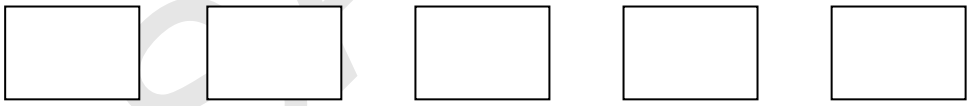
Answer.....

6. Calculate $1.1 \times (1.2 + 1.3) \times 2$

Answer.....

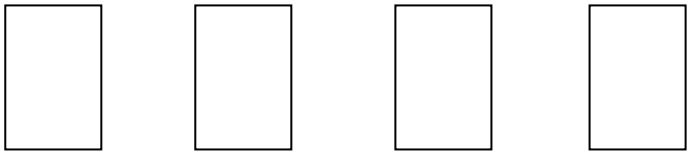
7. Write these numbers in the boxes below, ***in order of size***, starting with the **smallest**:

6.01 16.0 0.61 1.60 6.1



8. Write these fractions in the boxes below, ***in order of size,*** starting with the **smallest**:

$\frac{3}{4}$ $\frac{3}{5}$ $\frac{9}{10}$ $\frac{17}{20}$



9. Put a circle around all the numbers that are between 2.2 and 2.6

$2\frac{1}{2}$ $2\frac{1}{7}$ $2\frac{6}{11}$ $2\frac{2}{5}$ $2\frac{1}{10}$

SAMPLE

10. Mary, Jess and Jo run a race.
Jess's time is 18 seconds.
Jo finishes 6 seconds before Jess.
Mary finishes 4 seconds after Jo.
What is **Mary's time** in seconds?

Answer.....

11. Write **one number** which fits **all three** of these statements:
It is a multiple of 3
It is a multiple of 8
It ends in '2'

Answer.....

12. Put a circle around **all** the amounts that can be made with **three** coins:

13p 23p 33p 43p 53p

13. Here is part of a number sequence.
The numbers increase by the same amount each time.

150, 165, 180, 195, 210

The sequence continues.
Circle **all** of the numbers below that would appear in the sequence:

315 561 240 620 964

SAMPLE

14. Abigail gets up at 07:40 in the morning.
25 minutes later she starts her breakfast, which takes 10 minutes to finish.
She then leaves for school. Her journey takes 35 minutes in total.
She arrives 5 minutes late for registration.
At what time is registration?

Answer.....

15. Emily scores 30 out of 60 in a test.
Hebe scores 60% in the same test.
How many more marks did Hebe get than Emily?

Answer.....

16. A shop sells apples and oranges.
Kate buys 1 apple and 2 oranges. She paid 48p.
Jade buys 1 apple and 1 orange. She paid 31p.
How much does 1 orange cost?

Answer.....

SAMPLE

17. Alysha and Julia each have some money.
Altogether they have £3.20.
Alysha gives Julia 20p so that they both have the same amount.
How much money did each have at the start?

Alysha had ..... Julia had .....

18. 70 children need 3 pens each.
Pens are sold in packs of 8.
How many packs of pens need to be bought?

Answer.....

19. The cost for using a minibus is £2.42 for each kilometre.
11 friends go on a 32 kilometre journey using 1 minibus.
They share the cost equally.
How much does each person pay?

Answer.....

SAMPLE

20. Two whole numbers are each between 40 and 60.
They multiply to make 2385.
Write in the missing numbers in the boxes below.

SAMPLE

$\square \times \square = 2385$

END OF SECTION A

ST PAUL'S GIRLS' SCHOOL

Name:_____ Age:_____Yrs_____Mths

Group Number:_____

FIRST YEAR ENTRANCE EXAMINATION

MATHEMATICS

Section B

25 minutes

SAMPLE

PLEASE READ THESE INSTRUCTIONS VERY CAREFULLY

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

There are 10 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.

You have 25 minutes to complete this section. There are 10 questions.

1. If I treble a number and add 6, I get the same answer as when I add 16 to that number. What is my original number?

Answer.....

2. My money box contains an equal number of 5p, 10p and 20p coins and no other coins. How many coins are there altogether if there is £4.90 in the money box?

Answer.....

3. (a) Winston thinks of two different whole numbers that add together to make 20 and multiply to give 84. What are his two numbers?

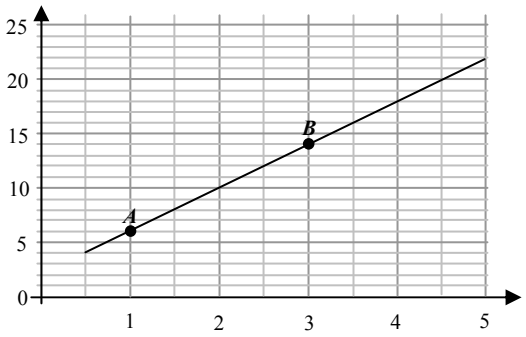
Answer.....

(b) He then thinks of a new number, multiplies it by 9 and subtracts 15. The result is 66. What was his original number?

Answer.....

SAMPLE

4. ***A*** and ***B*** are two points on a straight line. The point ***A*** is (1 , 6).



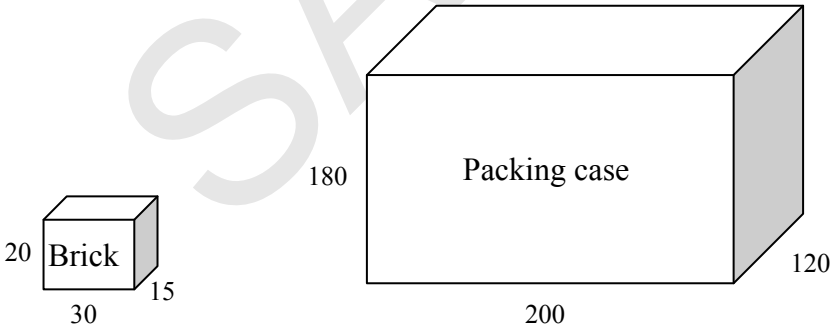
(a) What is point ***B***?

Answer (,)

(b) Two other points, ***C*** and ***D***, also lie on the same line, but are not shown in the diagram. Work out the missing values.

Answer ***C*** (6 ,); ***D*** (, 38)

5. A company makes bricks to export to builders. To ship them, they put the bricks into packing cases. The lengths of the sides of the bricks and the cases are shown below. All measurements are in cm.



What is the maximum number of bricks which can be fitted into the packing case?

Answer.....

SAMPLE

6. There are 3 moos in a quack and 13 quacks in an oink.

(a) How many moos are there in 3 quacks and 1 oink?

Answer.....

(b) What fraction of an oink does 9 moos represent?

Answer.....

(c) 800 moos are sorted into piles 2 oinks high. How many complete piles will there be and how many moos and quacks will be left over?

Answer.....complete piles.....quacks.....moos

SAMPLE

7. A clock is 18 minutes slow, but is gaining 7½ seconds every hour.

(a) How long will it take for the clock to show the correct time?

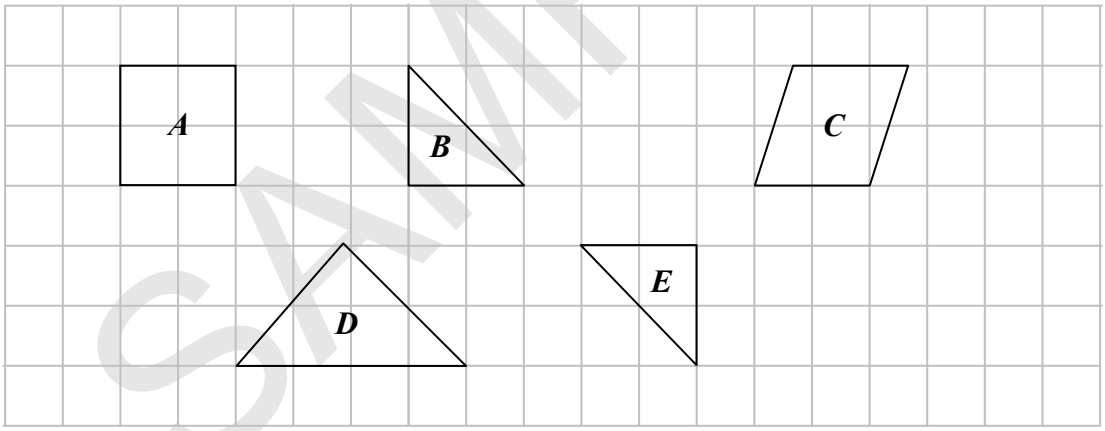
Answer.....

Another clock is 30 minutes fast, but is losing 11¼ seconds per hour.

(b) How many minutes fast will the second clock be when the first clock shows the right time?

Answer.....

8. You have 5 pieces of card shaped like this:



(a) Name 2 different pieces that can fit together to form a square.

Answer.....

(b) Name 2 different pieces that can fit together to form a trapezium.

Answer.....

(c) Name 3 different shapes which can fit together to form a parallelogram.

Answer.....

SAMPLE

9. 3 cats can catch 3 mice in 3 hours.

(a) How long would it take 3 cats to catch 1 mouse?

Answer.....

(b) How long would it take for 1 cat to catch 1 mouse?

Answer.....

10. Put the numbers 1 to 9 in the square so that each row, column and diagonal add up to 15.

	9	
6		

END OF SECTION B

SAMPLE

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ST PAUL'S GIRLS' SCHOOL

Name:_____ Age:_____Yrs_____Mths

Group Number:_____

FIRST YEAR ENTRANCE EXAMINATION

MATHEMATICS

Section C

25 minutes

SAMPLE

PLEASE READ THESE INSTRUCTIONS VERY CAREFULLY

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

There are 5 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.

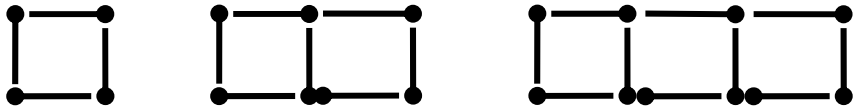
Do not ask a teacher to explain a question to you.

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.

You have 25 minutes to complete this section. There are 5 questions. Read the instructions carefully.

1. Claire makes squares with matches.
To make 1 square she needs 4 matches.
To make 2 squares she needs 7 matches.



(a) Fill in the table below:

Number of squares	1	2	3	4	5			
Number of matches								28

(b) How many matches will she need to make 40 squares?

Answer.....

(c) If she used 94 matches how many squares did she make?

Answer.....

SAMPLE

2. The instruction 'a ☺ b' means multiply a by b, then add on a. For example:

$5 ☺ 2 = 5 \times 2 + 5 = 10 + 5 = 15$

(a) Work out the value of

$4 ☺ 3 =$

Answer.....

$4 ☺ 0 =$

Answer.....

(b) What is the value of b if $3 ☺ b = 15$

Answer.....

(c) What is the value of a if $a ☺ a = 20$

Answer.....

(a ☺ b) ☺ c means work out (a ☺ b) first and then work out "*your answer*" ☺ c.

For example:

($5 ☺ 2$) ☺ 3 means do $5 ☺ 2 = 5 \times 2 + 5 = 15$ first, then work out
$15 ☺ 3 = 15 \times 3 + 15 = 45 + 15 = 60$

(d) Work out

$(2 ☺ 3) ☺ 4 =$

Answer.....

SAMPLE

3. The numbers 6, 12 and 15 can be divided by 3 without leaving a remainder. We say they are 'divisible by 3'.

The sum $6 + 12 + 15 = 33$ is also divisible by 3.

The number 5 is not divisible by 3, so $5 + 12 + 15 = 32$ is not divisible by 3, even though 12 and 15 are divisible by 3.

Finally, $5 + 12 + 4$ is divisible by 3, since 12 is divisible by 3 and $4 + 5 = 9$ is divisible by 3 again.

(a) Tick whether the following statements are true or false.
The first has been done for you.

		True	False
6 + 12 + 15	is divisible by 3	✓	
12 + 15 + 36	is divisible by 3		
16 + 39 + 81	is divisible by 3		
34 + 23 + 99	is divisible by 3		

$5 + 12 + 15 = 32$ divided by 5 leaves a remainder of 2 since 5 and 15 are divisible by 5 and 12 divided by 5 leaves a remainder of 2.

(b) Work out the remainders for the following questions:

		Remainder
25 + 17 + 200	divided by 5	
45 + 135 + 205	divided by 5	
315 + 43 + 57	divided by 5	

You are told that $1! = 1$, $2! = 1 \times 2 = 2$ and $3! = 1 \times 2 \times 3 = 6$.

(c) What is the remainder when $1! + 2! + 3! + 4! + 5! + 6! + 7! + 8! + 9! + 10!$ is divided by 5?

Answer.....

SAMPLE

4. Amitha started adding odd numbers and put her results in a table:

$$\begin{aligned} 1 &= 1 = 1^2 \\ 1+3 &= 4 = 2^2 \\ 1+3+5 &= 9 = 3^2 \end{aligned}$$

(a) Write down the next three lines of this table:

.....

.....

.....

(b) Use the idea in the table to find the missing numbers W and X

$1 + 3 + 5 + \ldots\ldots\ldots + 49 = W$

Answer W =.....

$1 + 3 + 5 + \ldots\ldots\ldots + 99 + 101 = X$

Answer X =.....

(c) Work out the missing numbers Y and Z:

$1 + 3 + 5 + \ldots\ldots\ldots + Y = 144$

Answer Y =.....

$1 + 3 + 5 + \ldots\ldots\ldots + Z = 400$

Answer Z =.....

SAMPLE

5. Dividing 35 by 8 gives 4 and leaves a remainder of 3. We write: 35 ÷ 8 = 4 r 3. So, we can write

	Column A				Column B		Column C
Line 1:	35	÷	8	=	4	r	3
Line 2:	26	÷	8	=	3	r	2
Line 3:	61	÷	8	=		r	

(a) Fill in the blank boxes in the table above.

(b) Fill in the blank boxes in the table below.

	Column A				Column B		Column C
Line 4:	21	÷	5	=		r	
Line 5:	33	÷	5	=		r	
Line 6:	54	÷	5	=		r	

(c) Now look at columns B and C in the tables above. Given the information in the table below, work out the remainder of
577767777 ÷ 7 **without** performing the division.
Write your answer in the blank box

	Column A				Column B		Column C
Line 7:	343424345	÷	7	=	49060620	r	5
Line 8:	234343432	÷	7	=	33477633	r	1
Line 9:	577767777	÷	7	=	82538253	r	

(d) Given that 343424345 – 234343432 = 109080913, predict the remainder of 109080913 ÷ 7 **without** performing the division.

Answer.....

(e) Given the information in the tables below work out the remainder of 470807973 ÷ 8 and write your answer in the blank box.

	Column A				Column B		Column C
Line 10:	21	÷	8	=	2	r	5
Line 11:	14	÷	8	=	1	r	6
Line 12:	35	÷	8	=	4	r	3

	Column A				Column B		Column C
Line 13:	349858934	÷	8	=	43732366	r	6
Line 14:	120949039	÷	8	=	15118629	r	7
Line 15:	470807973	÷	8	=	58850996	r	

END OF SECTION C

SAMPLE