11+ Entrance Examination
January 2013

MATHEMATICS

Time allowed: 45 minutes

NAME……

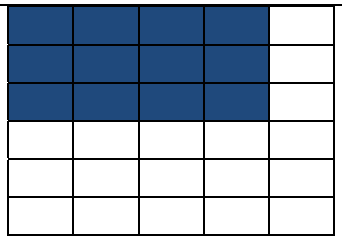
- **Work through the paper carefully**
- **<u>You do not have to finish everything</u>**
- **Do not spend too much time on any single question**
- **Show any working in the spaces provided**
- **Use the blank left hand pages for rough work**

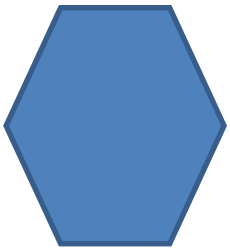
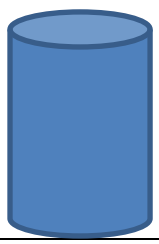
PAGE	1	2	3	4	5	6	7	8	TOTAL
MARK	18	22	18	9	14	9	5	5	100
MARK									

PAGE 1

ANSWER ALL QUESTIONS IN THE SPACES PROVIDED, SHOWING ANY NECESSARY WORKINGS

2030 + 997 =	2030 – 997 =	What is 2030 x 20?	DO NOT WRITE IN THIS BOX 1 1 1
Use your previous answer to write down 2030 x 5	Use these last two answers to write down 2030 x 25	Use your previous answer to write down 20.30 x 2.5	1 1 1
20.30 + 0.07 =	20.30 + 0.7 =	20.30 + 7 =	1 1 1
Given that 74 x 39 = 2886 What is 2886 ÷ 74 ? What is 288.6 ÷ 74? What is (28862886) ÷ 74?	What is 500 x 15 ? What is 500 x 1.5? What is 500 x 0.15?	What is 6000 ÷ 100? What is 6000 ÷ 200? What is 6000 ÷ 300?	1 1 1 1 1 1 1 1 1

Which of these three is the largest and which is the smallest? 65% 0.605 $\frac{3}{5}$ Largest = Smallest =	What is 10% of £250? What is 5% of £250? What is $2^{1}/_{2}$% of £250? Use your answers to find $17^{1}/_{2}$% of £250	Find one seventh of 280 Use your answer to find four sevenths of 280	DO NOT WRITE IN THIS BOX 1 1 1 1 1 1 1 1
Add together 25% of 20 $\frac{1}{5}$ of 30 and $\frac{2}{3}$ of 18	Richard is 18 years old. Adam is half as old as Richard. Will is $\frac{2}{3}$ of Adam's age. What is their total age?	Write down a decimal between 90% and 95% Write down a fraction between 80% and 90%	1 1 1 1 1 1 1 1
What are the next two numbers in these sequences 2, 6, 12, 20, 30,…….. ……and……. 1, 4, 9, 16, 25, 36,….. ……and……	Put these decimals in order, starting with the largest. 0.201, 0.021, 0.21	 What fraction of this flag is shaded? How many more rectangles need to be shaded to fill $\frac{4}{5}$ of the flag?	1 1 1 1 1

Work out $\frac{2}{3} + \frac{2}{9}$	Work out $\frac{5}{8} - \frac{3}{5}$	Add together the following, giving your answer as a DECIMAL $\frac{2}{5}$, 35% and 0.604	DO NOT WRITE IN THIS BOX 1 1 1 1 1 1 1
What is the biggest number that divides exactly into 28 , 84 and 126 ?	What is the smallest number that 3, 5, and 12 all divide into?	Find two numbers that have a difference of 8 and add up to 18 ……and…….	 1 1 1
What is 0.3 written as a fraction? What is 0.03 written as a fraction? What is 0.303 written as a fraction?	What is $\frac{1}{4}$ written as a decimal? What is $\frac{1}{40}$ written as a decimal? What is $\frac{7}{40}$ written as a decimal?	Name the shapes below  	 1 1 1 1 1 1 1 1

A teacher asks the students in year 6 how many people live in their homes. She records her results in the table below.

DO NOT WRITE IN THIS BOX

Number of people in house	Number of times	Total number of people
3	45	3 x 45 =135
4	25	
5	17	
6	10	
7	3	

1
1
1
1

Complete the end column in the table

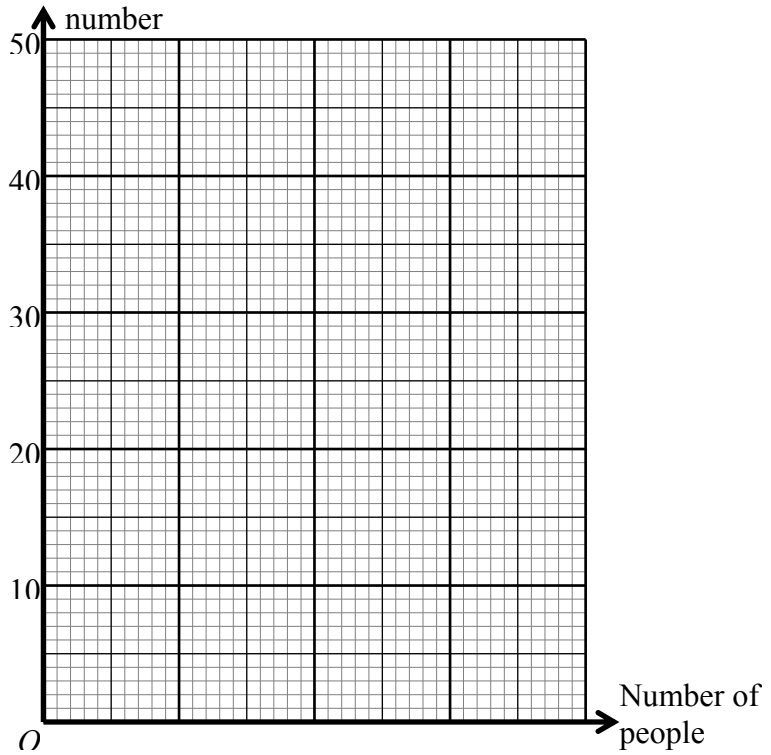
How many students are there in year 6?.....

1

How many people are there all together?.....

1

Using the first two columns of the table, draw a bar chart to represent these results.



1
1
1

PAGE 5

What are the missing numbers in the sums shown below?

			DO NOT WRITE IN THIS BOX
27 - ..... = 19	..... – 59 = 24	270 ÷ ..... = 15	3
(8 + ...) x 4 = 88	..... x ..... = 25	$\frac{(24 - .....)}{3} = 7$	3
3 x ..... + 4 = 22	..... ÷ 7 = 13	$\frac{(..... + 4)}{8} = 3$	3

Here are some number cards

You can use each card once to make the number 2538 like this

What is the biggest 4 digit number you can make with the four cards?..... 1

What is the smallest 4 digit number you can make with the four cards?..... 1

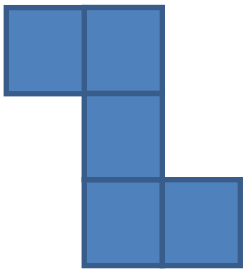
What is the biggest even number you can make with three of the cards?
..... 1

Use some of the four number cards to make numbers as close as possible to the numbers given below

60 →  1

400 →  1

The diagram below is a scale drawing of a Z shaped path of area $20m^2$



DO NOT WRITE IN THIS BOX

What is the area of each individual square? 1

.....

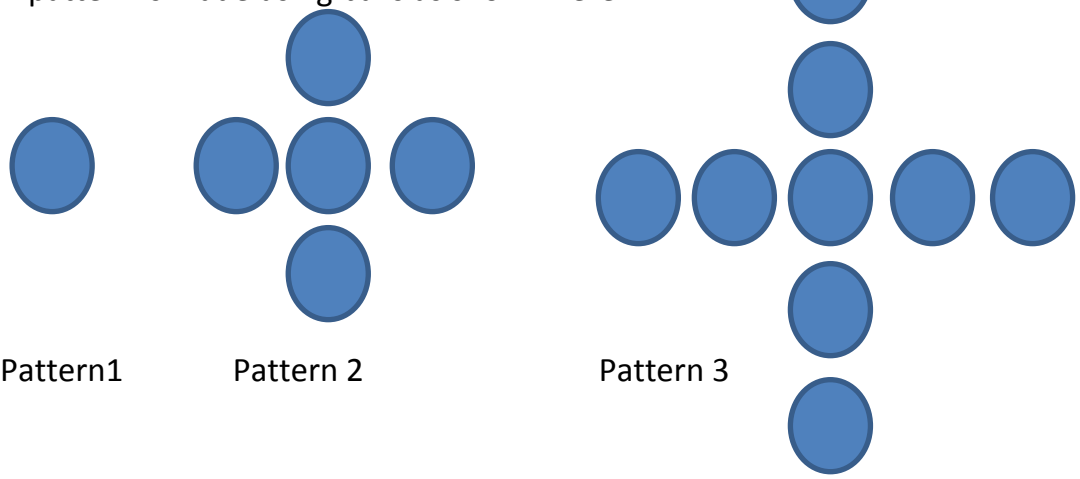
What is the length of each side of each individual square? 1

.....

What is the perimeter of the path? 1

.....

A pattern is made using balls as shown here.



Pattern1 Pattern 2 Pattern 3

Copy and complete the table below. 1

Pattern	1	2	3	4	5
Number of Balls	1	5			

1

1

How many balls are there in the 10^{th} pattern?

.....

1

How many balls are there in the 100^{th} pattern?

.....

1

Which pattern has 117 balls?

.....

1

Which of these is the smallest fraction? Circle your answer. $\frac{3}{4}$ $\frac{2}{3}$ $\frac{5}{12}$ $\frac{9}{14}$	DO NOT WRITE IN THIS BOX 1
I have forgotten the last two digits of my PIN number, but know that the first two digits are 8 and 6 8 6 * * However, I know that my PIN number is divisible by 3, 4 and 5. What is my PIN number?	1
What is the 100th symbol in this endless string of symbols &£=&£=&£=&£=&£=	1
On holiday last year Phil bought 10 post cards at 45p each and 10 second class stamps at 27p each. How much change did he get from a £10 note?	1
Which of these fractions is the biggest? Circle your answer. $\frac{1+2}{2+3}$ $\frac{2+4}{2+3}$ $\frac{1+2}{4+6}$ $\frac{3+4}{2+3}$ $\frac{1+4}{1+3}$	1

In a game of football the final score was 3-2. How many possible half time scores were there?	DO NOT WRITE IN THIS BOX 1
What is the sum of the first 40 whole numbers ?	1
How many numbers less than 100 are divisible by both 2 and 5?	1
Seven telegraph poles are equally spaced along a road. The distance between the first and the third pole is 268m. How far is it between the first and last pole?	1
A block of chocolate is divided between three friends. Paul gets half of it and Peter gets one third of it. Richard gets 100g of chocolate. How heavy was the bar originally?	1

END OF EXAMINATION

11+ Entrance Examination
January 2012

MATHEMATICS

Time allowed: 45 minutes

NAME……

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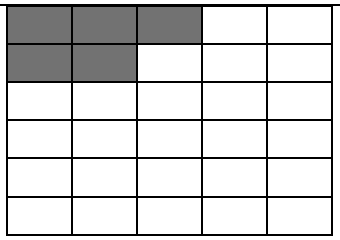
- **Use the blank left hand pages for rough work**

PAGE	1	2	3	4	5	6	7	TOTAL
MARK	18	24	18	8	14	8	10	100
MARK								

ANSWER ALL QUESTIONS IN THE SPACES PROVIDED, SHOWING ANY NECESSARY WORKINGS

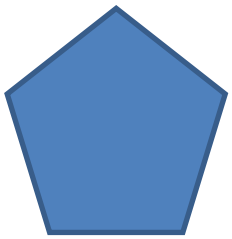
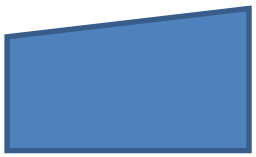
			DO NOT WRITE IN THIS BOX
2002 + 999 =	2002 – 999 =	What is 2002 x 10?	1 1 1
Use your previous answer to write down 2002 x 5	Use these last two answers to write down 2002 x 15	Use your previous answer to write down 20.02 x 1.5	1 1 1
20.02 + 0.07 =	20.02 + 0.7 =	20.02 + 7 =	1 1 1
Given that 35 x 17 = 595 What is 595 ÷ 17 ? What is 59500 ÷ 17? What is (595 + 595 + 595) ÷ 17?	What is 600 x 12 ? What is 600 x 1.2? What is 600 x 0.12?	What is 8000 ÷ 100? What is 8000 ÷ 400? What is 8000 ÷ 50?	1 1 1 1 1 1 1 1 1 1

PAGE 2

Which of these three is the largest and which is the smallest? 70% 0.65 $\frac{4}{5}$ Largest = Smallest =	What is 10% of £600? What is 5% of £600? What is $2^1/_2$% of £600? Use your answers to find $17^1/_2$% of £600	Find one ninth of 360 Use your answer to find four ninths of 360	DO NOT WRITE IN THIS BOX 1 1 1 1 1 1 1 1 1
Add together $\frac{1}{4}$ of 24 $\frac{2}{5}$ of 30 and $\frac{1}{3}$ of 15	Richard is 12 years old. Adam is twice as old as Richard. Will is $\frac{2}{3}$ of Adam's age. What is their total age?	Write down a decimal between 75% and 80% Write down a fraction between 60% and 70%	1 1 1 1 1 1 1 1 1
What are the next two numbers in these sequences 1, 4, 8, 13, 19,…….. ……and……. 1, 1, 2, 3, 5, 8,…..	Put these decimals in order, starting with the largest. 0.101, 0.011, 0.11	 What fraction of this flag is shaded? How many more rectangles need to be shaded to fill $\frac{2}{3}$ of the	2 2 1 1 1

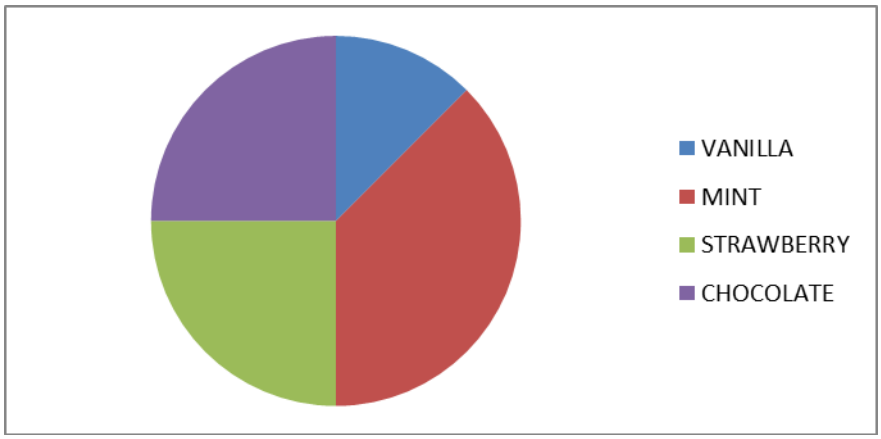
……and……		flag?	

PAGE 3

Work out $\frac{1}{3} + \frac{5}{12}$	Work out $\frac{7}{15} - \frac{2}{5}$	Add together the following, giving your answer as a DECIMAL 65%, 0.507 and $\frac{1}{4}$	DO NOT WRITE IN THIS BOX 1 1 1 1 1 1 1
What is the biggest number that divides exactly into 60, 72 and 84?	What is the smallest number that 2, 3, and 8 all divide into?	Find two numbers that have a difference of 5 and add up to 19 ……and…….	1 1 1
What is 0.7 written as a fraction? What is 0.07 written as a fraction? What is 0.707 written as a fraction?	What is $\frac{1}{5}$ written as a decimal? What is $\frac{1}{50}$ written as a decimal? What is $\frac{3}{50}$ written as a decimal?	Name the shapes below  	1 1 1 1 1 1 1 1

An ice cream company recently carried out a survey on 120 people to see which of their flavours were most popular. The results are shown in the pie chart below.

DO NOT WRITE IN THIS BOX



How many people liked each flavour?

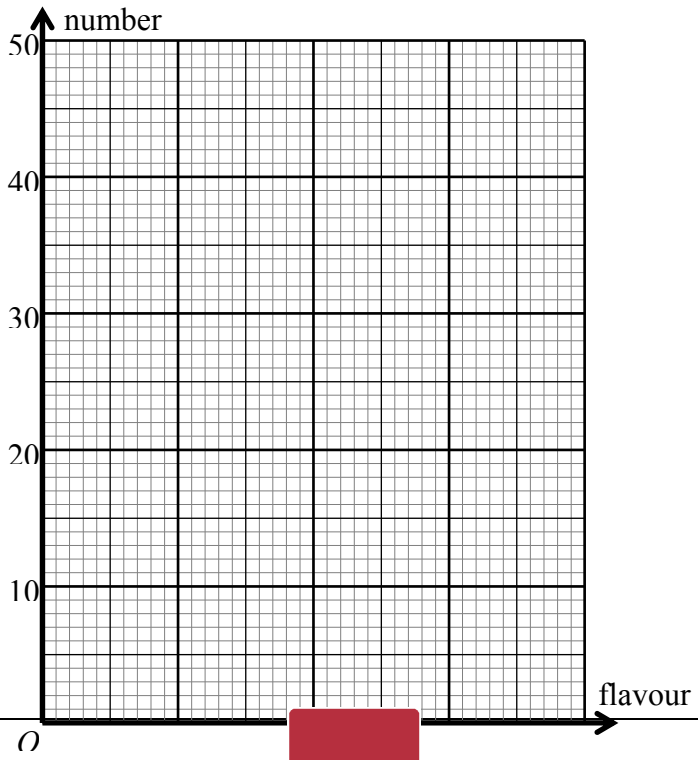
VANILLA =..... **1**

MINT =..... **1**

STRAWBERRY =..... **1**

CHOCOLATE =..... **1**

Draw a bar chart to represent these results.



1
1
1
1

PAGE 5

What are the missing numbers in the sums shown below?

			DO NOT WRITE IN THIS BOX
18 - …… = 13	…….. – 29 = 56	560 ÷ …….. = 14	3
(8 + ……..) x 5 = 85	…….. x ……. = 21	$\frac{(24 - \text{……..})}{4} = 4$	3
3 x …… + 7 = 22	……. ÷ 12 = 12	$\frac{(\text{……. } + 4)}{5} = 10$	3

Here are some number cards

You can use each card once to make the number 1735 like this

What is the biggest number you can make with the four cards?……. 1

Explain why you cannot make an even number

……..

…… 1

……..

Use some of the four number cards to make numbers as close as possible to the numbers given below

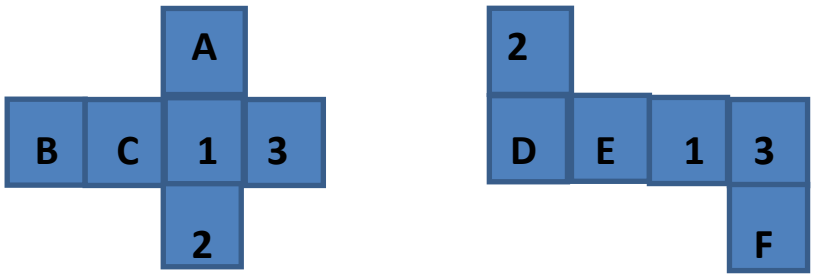
50 →  1

60 →  1

4000 →  1

These shapes can be folded to form cubical dice

DO NOT WRITE IN THIS BOX

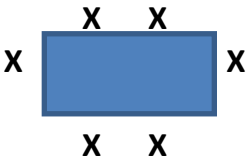


Opposite faces of a dice always add up to 7.

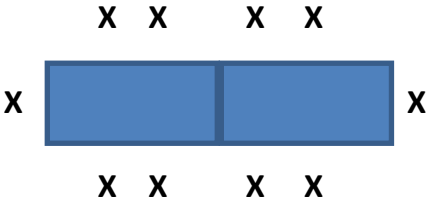
What are the values of

A..... 1
B..... 1
C..... 1
D..... 1
E..... 1
F.....

Six people can sit around a table as shown



Ten people can sit around two tables as shown



1

How many people can sit around three tables in the same way?..... 1

How many people can sit around ten tables in the same way?.....	

PAGE 7

	DO NOT WRITE IN THIS BOX
Four lamp posts are in a straight line. The distance from each post to the next is 25m. What is the distance from the first post to the last?	**1**
What is two and thirty four hundredths when it is written as a decimal?	**1**
What is half of 999?	**1**
Which of these numbers is NOT a multiple of 3? **12 234 3456 45678 567890**	**1**
What does 2 x 17 + 3 x 17 + 5 x 17 =?	**1**
Mary has three brothers and four sisters. If they, and Mary, all buy each other an Easter egg, how many eggs will be bought?	**1**
A transport company's vans each carry a maximum load of 12 tonnes. A firm needs to deliver 24 crates each weighing 5 tonnes. How many vans are needed?	**1**
What is the difference between the largest and smallest of these numbers **0.89 0.9 0.17 0.72 0.73**	**1**
Three quarters of a local tennis club are girls. There are 20 boys in the club. How many girls are there?	**1**

A ball is dropped onto a hard surface and each time it bounces, it rebounds to one third of the height from which it fell. After the second bounce it rises 9cm. How high was it initially dropped from?	**1**

END OF EXAMINATION

Reigate Grammar School

11+ Entrance Examination
January 2011

MATHEMATICS

Time allowed: 45 minutes

NAME.....

- **Work through the paper carefully**
- **<u>You do not have to finish everything</u>**
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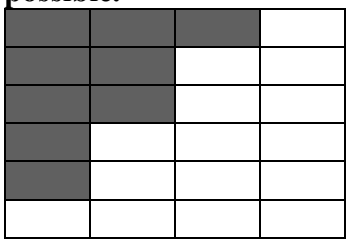
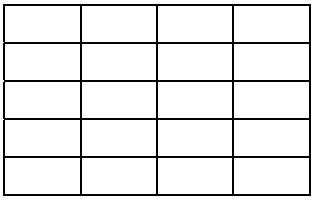
- **Use the blank left hand pages for rough work**

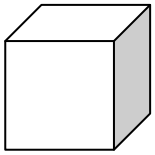
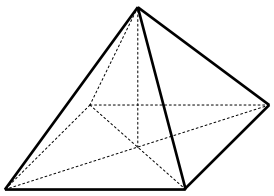
PAGE	1	2	3	4	5	6	7	TOTAL
MARK	17	20	21	6	12	15	9	100
MARK								

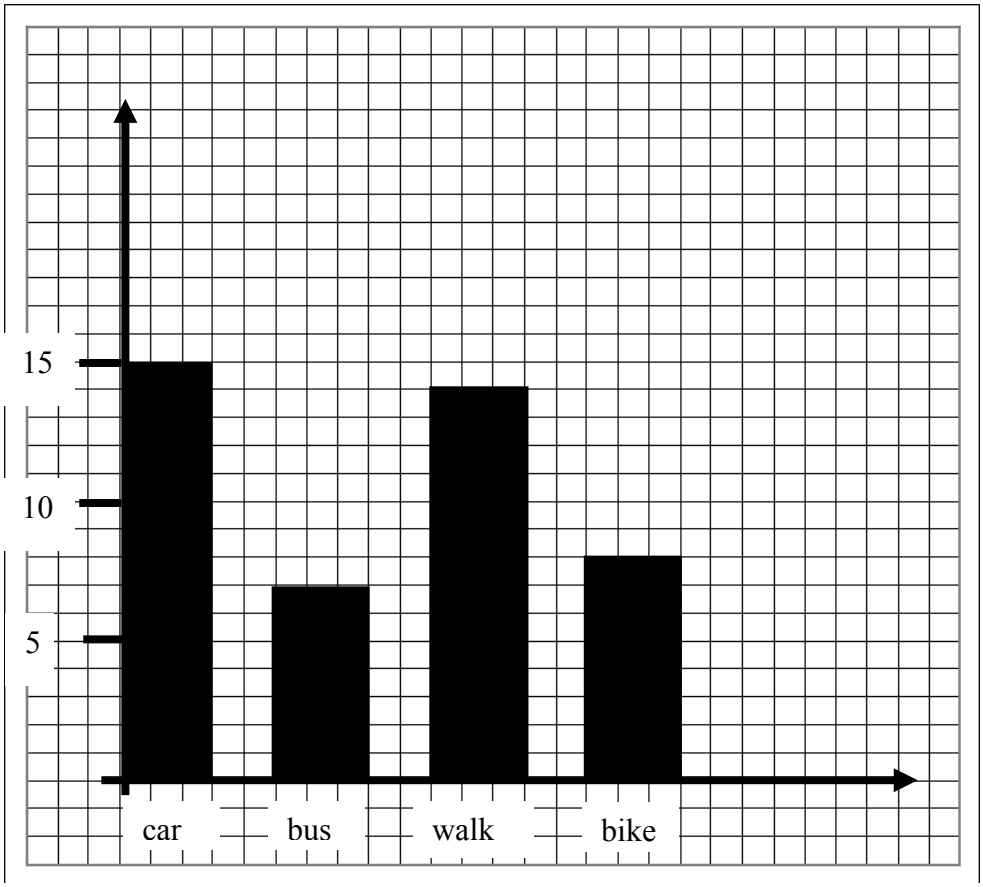
Complete each of the following, showing your working in the space provided

2011 + 999 =	**2011 – 999 =**	**2011 × 11 =**	**W… in th… box** **1** **1** **1**
Use your previous answer to find **20.11 × 1.1 =**	**What is 24 x 9?**	**Use your previous answer to write down the answer to 2400 x 90**	**1** **1** **1**
20.11 + 0.09 =	**20.11 + 0.9 =**	**20.11 + 9 =**	**1** **1** **1**
Given that **25 × 19 = 475** **Use this answer to find** **475 ÷ 19 =** **and** **47500 ÷ 19 =** **and** **(475 + 475) ÷ 19 =**	**Given that** **567 ÷ 27 = 21** **Use this answer to find** **567 ÷ 21 =** **and** **56.7 ÷ 2.7 =**	**What is 4000 ÷ 40** **…….** **Use your answer to write down the answers to** **4000 ÷ 20** **…….** **4000 ÷ 80** **…….**	**1** **1** **1** **1** **1** **1** **1** **1**

Write these three fractions in order of size, starting with the largest first. $\frac{1}{3}, \frac{3}{8}, \frac{2}{5}$ ……..	**What is 10% of £400** ……. **Use your answer to write down $7\frac{1}{2}$% of £400** …….	**Find five eighths of 408p** ……..	**1** **1** **1** **2**
Write these three decimals in order of size, starting with the largest first. **0.92, 0.9, 0.909** ……..	**What is the smallest number that 2, 3 and 4 all divide into exactly?** …….	**Write down a fraction between 0.5 and 0.6** --------- **Write down a decimal between $\frac{3}{4}$ and 1** ---------	**1** **1** **1** **1**
Write down the number thirty three thousand and thirty three in figures. …….	**What is two thousand, four hundred and five plus one thousand, eight hundred and twenty seven in words?** …….. ……..	**What are the next two numbers in these series?** **13, 10, 7, 4, ……..** --------, ------- **2, 6, 12, 20, 30……..** -------, -------	**1** **2** **2** **2**
What fraction of this flag has been shaded? Give the fraction as simply as possible.  ----------	**Shade in two fifths of the flag below.** 	**Sam has £3.85 to spend. He buys a pencil for 38p and a ruler for 59p. How much does he have left?** ----------	**1** **1** **1** **1**

You arrive at a bus stop	**You have to catch the**	**Work out, simplifying**	**Do not**

18 minutes late. The buses run every 45 minutes. How long do you have to wait for the next bus? **----------**	**bus after school. Buses leave school at 15.55 and 16.35. If you are 4 minutes late for the first bus, how long do you have to wait for the second bus?** **----------**	**your answer if possible** $\frac{2}{9} - \frac{4}{27}$ **-------**	**1** **1** **1** **1** **1**
Change these fractions into decimals. **$\frac{1}{4}$ = ……** **$\frac{1}{40}$ = ……..** **$\frac{3}{400}$ = ……**	**Fill in the table below with the information requested.**   **CUBE** | **PYRAMID** **Number of corners** | | | **Number of edges** | | | **Number of faces (surfaces)** | | |		**1** **1** **1** **6**
When you add up two numbers you get 11, but when you multiply the two numbers you get 28. What are the two numbers? **----------**	**I think of a number, double it and take away 5. The answer is 13. What was my number?** **----------** **I think of another number, take away 5 and then double it. My answer is again 16. What was my number this time?** **----------** **Finally I think of another number, multiply it by itself and take away 5. My answer is 31. What was the number I thought of?** **----------**		**1** **2** **2** **2**
George carries out a survey at school to find out how his school friends travel to school. He represents this data on the bar chart shown below.			**Do not write in this box**



(a) Fill in the table below

Method of Transport	Number
CAR	
BUS	
WALK	
BIKE	

4

(b) How many people were in the survey? 1

……..

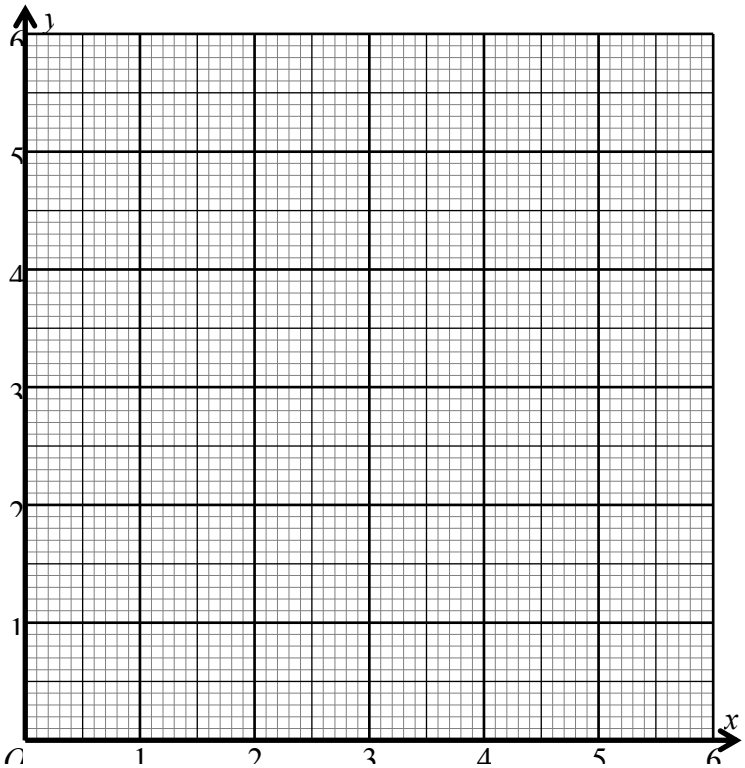
(c) In an attempt to improve the environment children are encouraged to find a "greener" way to get to school. A third of those who travel by car decide to walk and 3 move from bus to walking too. How many now walk?

1

……..

In the following questions fill in the missing number. You can only use WHOLE numbers.

			Do not write in this box
(…… + 4) x 7 = 63	2 x ….. + 7 = 33	….. x …. = 21	3
187 ÷ ….. = 11	$\frac{\ldots. + 6}{3} = 5$	$(13 - \ldots\ldots)^2 = 25$	3



On the graph paper above plot the points with coordinates and labels

A=(0,2) B=(1,5) C=(4,4) D=(3,1) E=(2,2) F=(1,1) and G=(5,3) **3**

Which 3 letters form a straight line?

…… **1**

Which 4 letters form a rectangle?

…… **1**

Which 4 letters form a square?

…… **1**

The vehicles listed below were seen driving past the front of Reigate Grammar School between 4.00pm and 4.15pm last night.

Do not write in this box

2 coaches each with 52 passengers and a driver	2 x 53 =	106	
5 lorries each with a driver only			2
3 minibuses each with 15 passengers and a driver			2
6 cars with only a driver			2
4 cars with a driver and 1 passenger each			2
5 cars with a driver and 2 passengers each			2

Fill in the table and use your table to find;

(a) How many vehicles passed the front of school?

1

…….

(b) How many people passed the front of school?

1

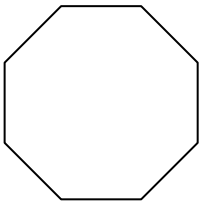
…….

(c) How many passengers passed the front of school?

1

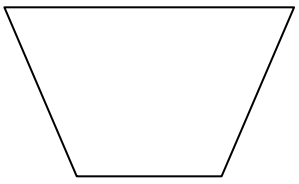
…….

Name the two shapes shown below



1

……..

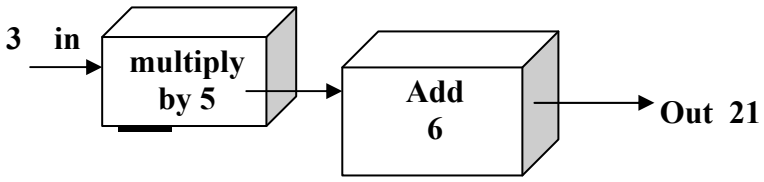


1

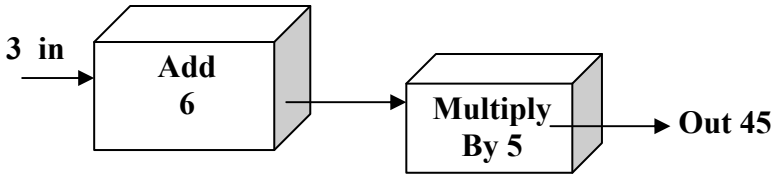
……

Do not write in this box

Tom has a number machine which multiplies by 5 and then adds 6
When he puts 3 in the answer comes out as 21



Sarah then changes the boxes around so that when she puts in 3 her answer is 45



They both put the same number into their machines. **2**

If 41 comes out of Tom's machine what comes out of Sarah's?……...

2

If 55 comes out of Sarah's machine what comes out of Tom's?……...

The number pattern below is known as Pascal's Triangle. Each number is the sum of the two numbers directly above it.

Row 1 1
Row 2 1 1
Row 3 1 2 1
1 3 3 1
1 4 6 4 1
1 5 10 10 5 1

Complete the table below

ROW	TOTAL	
1	1	
2	2	2
3	4	2x2
4		2x2x2
5		
6		
7		

1
1
1
1

What will be the total in row 10?

1

……