Reigate Grammar School

11+ Entrance Examination
January 2012

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**

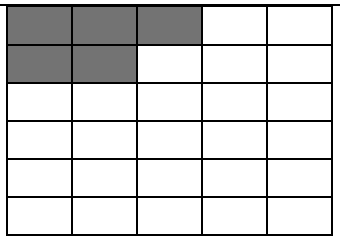
PAGE	1	2	3	4	5	6	7	TOTAL
MARK	18	24	18	8	14	8	10	100
MARK								

PAGE 1

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

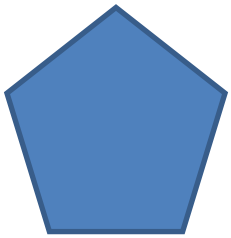
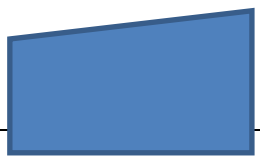
			DO NOT WRITE IN THIS BOX
2002 + 999 =	**2002 – 999 =**	**What is 2002 x 10?**	**1** **1** **1**
Use your previous answer to write down 2002 x 5	**Use these last two answers to write down 2002 x 15**	**Use your previous answer to write down 20.02 x 1.5**	**1** **1** **1**
20.02 + 0.07 =	**20.02 + 0.7 =**	**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**

PAGE 2

			DO NOT WRITE IN THIS BOX
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**	**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**	**2** **2** **1** **1** **1**

……and……		shaded to fill $\frac{2}{3}$ of the flag?	

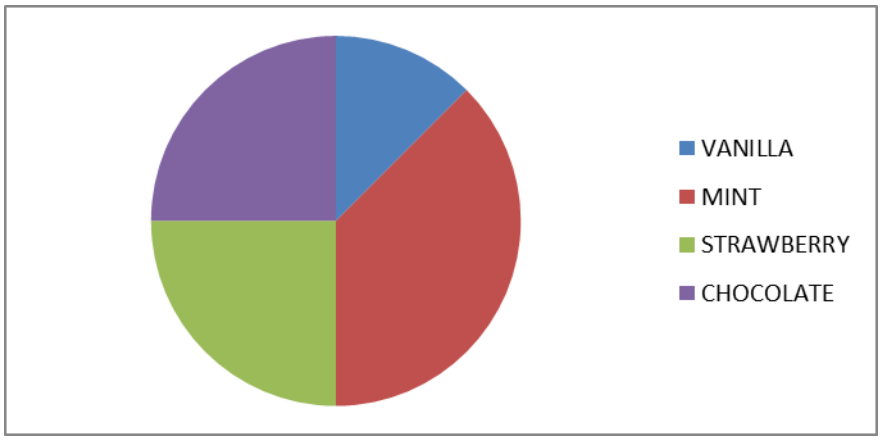
PAGE 3

			DO NOT WRITE IN THIS BOX
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 $\frac{1}{4}$	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

PAGE 4

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?

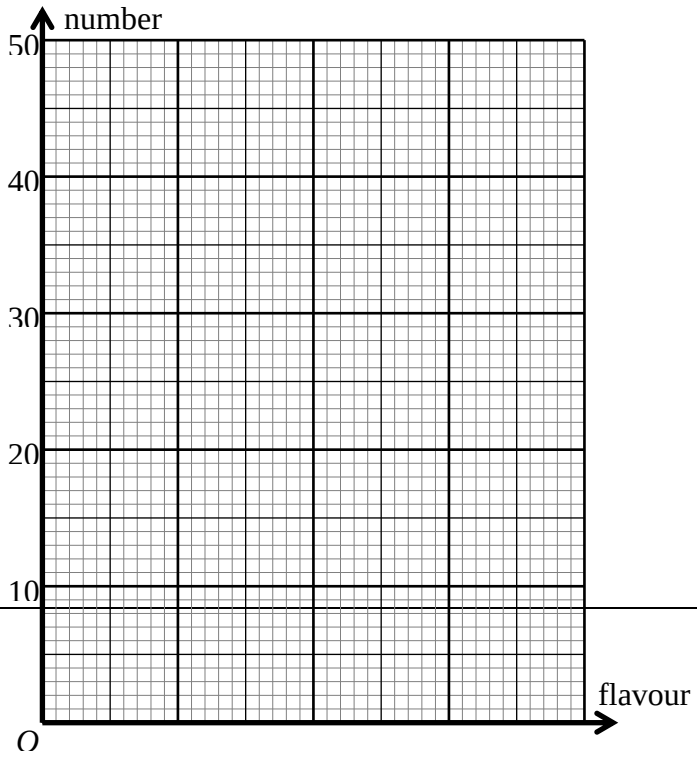
VANILLA =…….. **1**

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	$\frac{(24 - \ldots\ldots..)}{4} = 4$	3
3 x …… + 7 = 22	……. ÷ 12 = 12	$\frac{(\ldots\ldots. + 4)}{5} = 10$	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

…….

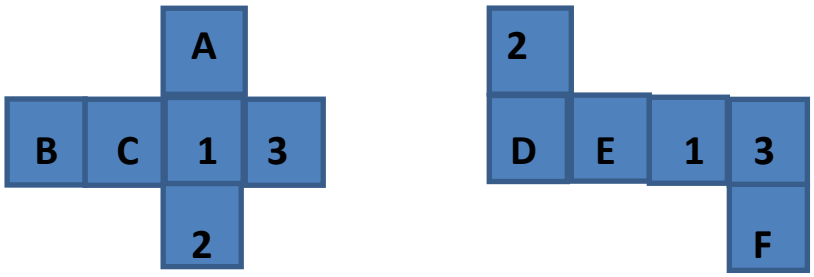
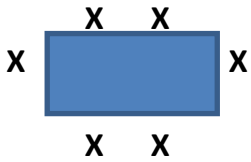
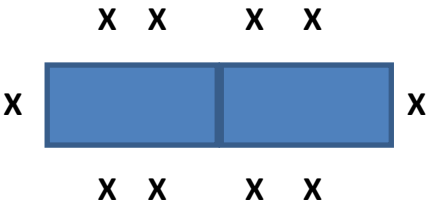
Use some of the four number cards to make numbers as close as possible to the numbers given below

50 →  1

60 →  1

4000 	1

PAGE 6

These shapes can be folded to form cubical dice  **Opposite faces of a dice always add up to 7.** **What are the values of** **A……** **B……** **C……** **D……** **E……** **F……**	DO NOT WRITE IN THIS BOX 1 1 1 1 1 1
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?..... **How many people can sit around ten tables in the same way?.....**	**1**

PAGE 7

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?	DO NOT WRITE IN THIS BOX **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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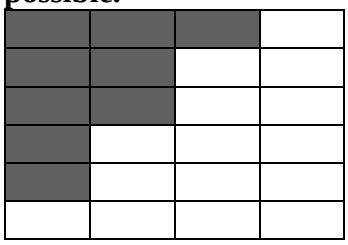
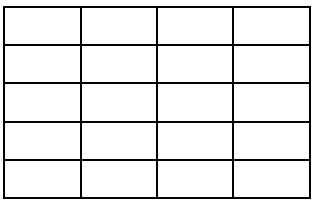
PAGE	1	2	3	4	5	6	7	TOTAL
MARK	17	20	21	6	12	15	9	100
MARK								

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

2011 + 999 =	**2011 – 999 =**	**2011 × 11 =**	**Do not write in this 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 <u>largest</u> 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** ……..	**Do not write in this box** **1** **1** **1** **2**
Write these three decimals in order of size, starting with the <u>largest</u> first. **0.92, 0.9, 0.909** ……..	**What is the smallest number that 2, 3 and 4 all divide into exactly?** ……	**Write down a <u>fraction</u> between 0.5 and 0.6** --------- **Write down a <u>decimal</u> 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**

<table>
<tr>
<td>You arrive at a bus stop 18 minutes late. The buses run every 45 minutes. How long do you have to wait for the next bus?

----------</td>
<td>You have to catch the 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?

----------</td>
<td>Work out, simplifying your answer if possible

$\frac{2}{9} - \frac{4}{27}$

-------</td>
<td>Do not write in this box

1

1

1

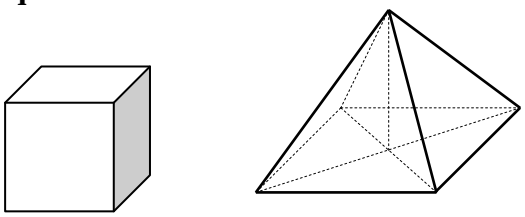
1

1</td>
</tr>
<tr>
<td>Change these fractions into decimals.

1/4 = …….

1/40 = ……..

3/400 = …….</td>
<td colspan="2">Fill in the table below with the information requested.

<table>
<tr><th></th><th>CUBE</th><th>PYRAMID</th></tr>
<tr><td>Number of corners</td><td></td><td></td></tr>
<tr><td>Number of edges</td><td></td><td></td></tr>
<tr><td>Number of faces (surfaces)</td><td></td><td></td></tr>
</table></td>
<td>1

1

1

6</td>
</tr>
<tr>
<td>When you add up two numbers you get 11, but when you multiply the two numbers you get 28. What are the two numbers?

----------</td>
<td colspan="2">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?

----------</td>
<td>1

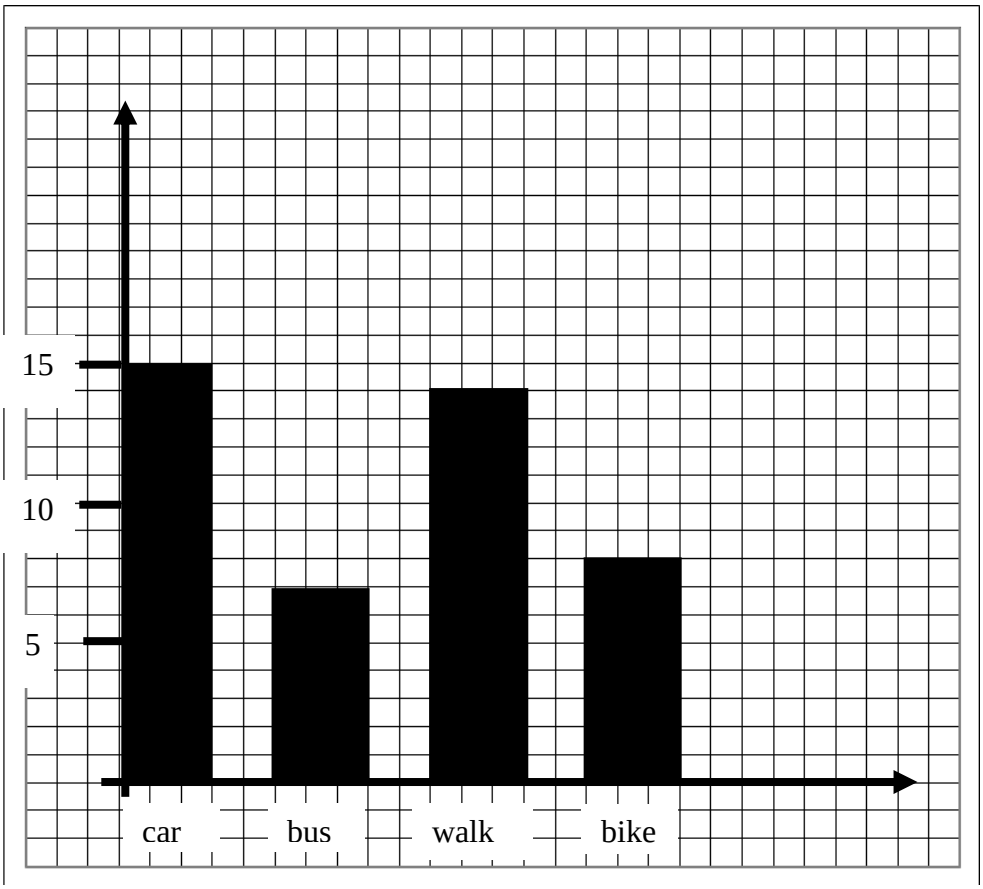
2

2

2</td>
</tr>
</table>

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?

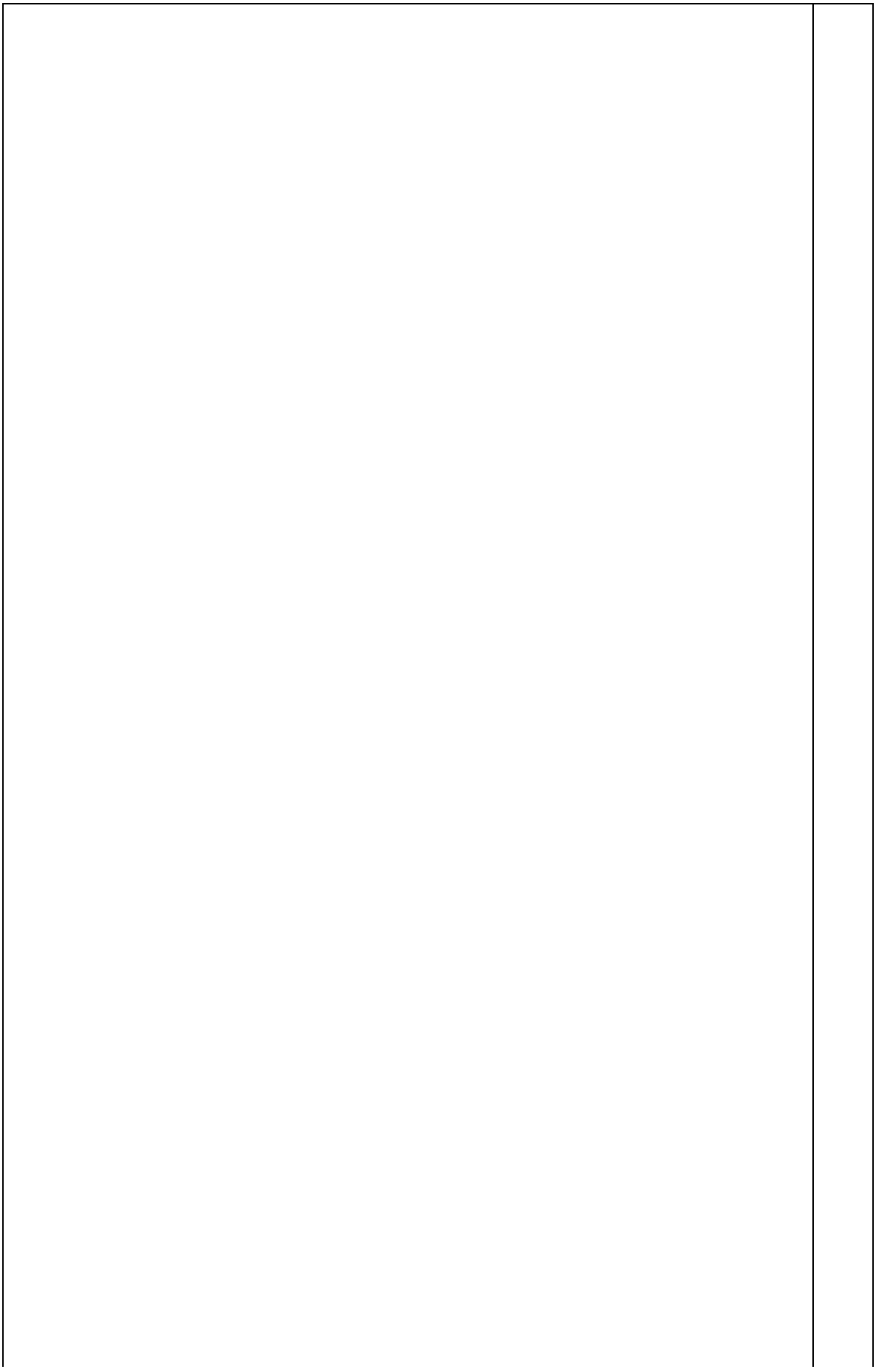
1

……..

(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?

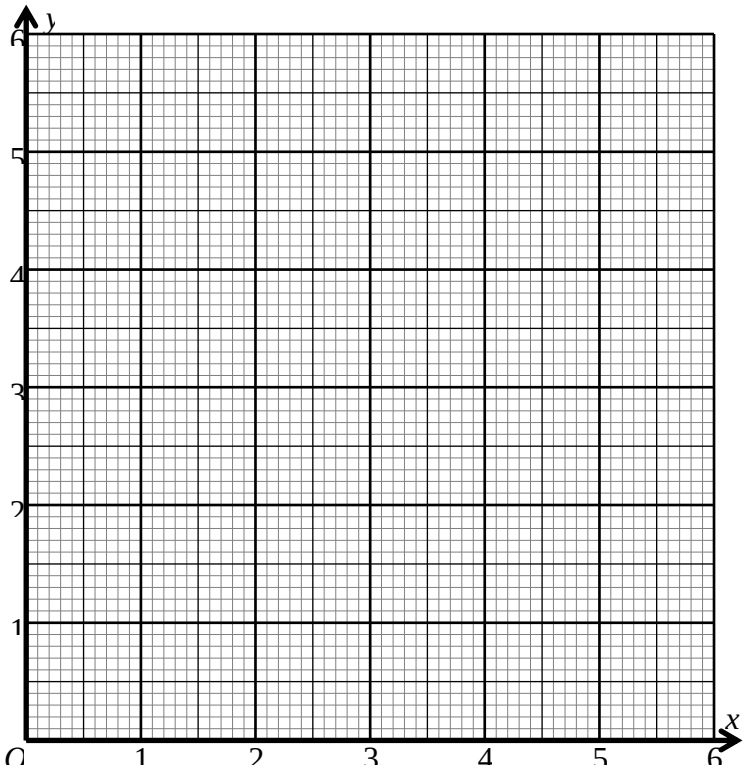
1

……..



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		
3 minibuses each with 15 passengers and a driver		
6 cars with only a driver		
4 cars with a driver and 1 passenger each		
5 cars with a driver and 2 passengers each		

2

2

2

2

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

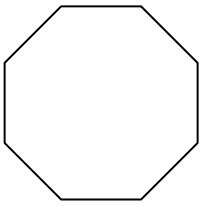
…….

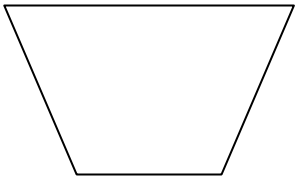
(c) How many passengers passed the front of school?

1

…….

Name the two shapes shown below





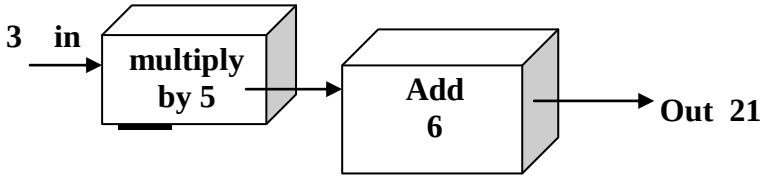
1

1

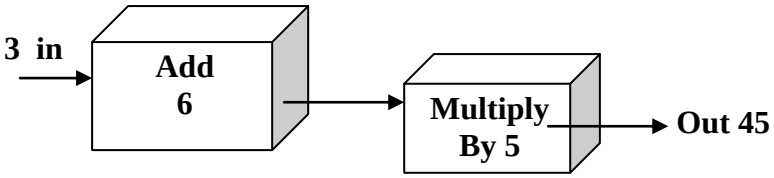
…….. **……**

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

Do not write in this box



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**

……

REIGATE GRAMMAR SCHOOL

11+ Mathematics paper

January 2010

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**

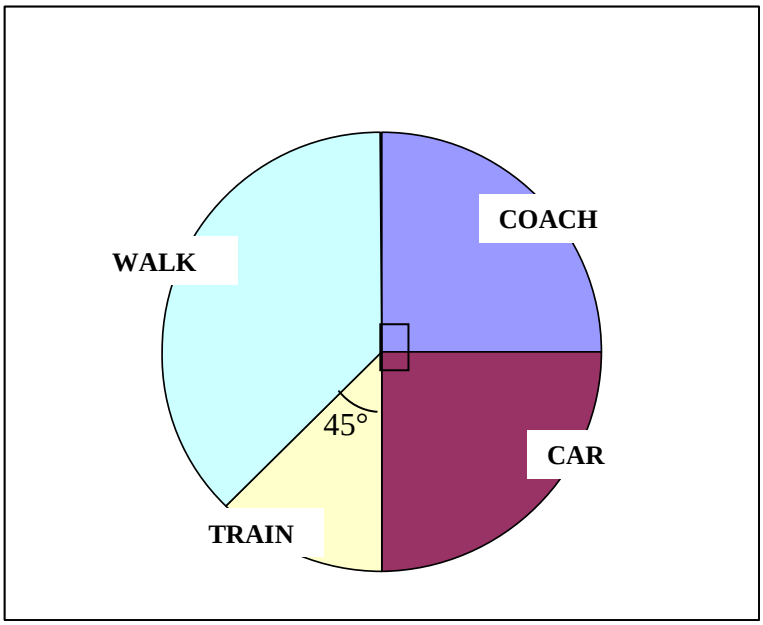
PAGE	1	2	3	4	5	6	7	TOTAL
MARK	16	27	20	8	11	8	10	100
MARK								

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

2010 + 997 =	**2010 – 997 =**	**2010 × 12 =**	**Do not write in this box** **1** **1** **1**
Use your previous answer to find **20.1 × 1.2 =**	**2010 ÷ 6 =**	**Use your previous answer to find** **20.1 ÷ 6 =**	**1** **1** **1**
32.01 + 0.09 =	**32.01 + 0.9 =**	**32.01 + 9 =**	**1** **1** **1**
Given that **37 × 84 = 3108** **Use this answer to find** **3108 ÷ 37 =** **and** **3108 ÷ 8.4 =** **and** **31083108 ÷ 84 =**	**Given that** **799 ÷ 17 = 47** **Use this answer to find** **799 ÷ 47 =** **and** **79900 ÷ 47 =**	**Given that** **34567 – 13579 = 20988** **What is** **13579 + 20988 =** **and** **34.567 – 20.988 =**	 **1** **1** **1** **1** **1** **1** **1**

Write these three quantities in order of size, starting with the <u>largest</u> first. $\frac{1}{6}$**, 0.15, 20%** ……..	**What is 10% of £60** …… **Use your answer to write down** $3\frac{1}{3}$ **% of £60** ……	**Find four ninths of 963p** ……..	**Do not write in this box** **2** **1** **2** **2**
A school has 995 pupils. If there are 7 less girls than boys, how many boys are there in the school? ……..	**$^2/_5$ of the children in a class are boys. There are 12 girls in the class. How many boys are there?** ……	**Write down a <u>fraction</u> between 0.8 and 0.9** --------- **Write down a <u>decimal</u> between** $\frac{2}{5}$ **and** $\frac{1}{2}$ ---------	**2** **2** **1** **1**
Which of these decimals is the smallest and which is the largest? **0.7, 0.706, 0.76, 0.759, 0.079** **Smallest = ----------** **Largest = ----------**	**What are the next two numbers in these series?** **2, 5, 7, 12, 19, …** --------, ------- **100, 81, 64, 49, 36, ….** -------, -------	**Which of these fractions is the smallest and which is the largest?** $\frac{1}{3}, \frac{2}{5}, \frac{3}{8}, \frac{7}{20}, \frac{4}{11}$ **Smallest = ----------** **Largest = ----------**	**2** **2** **2** **1** **1**
What fraction of this flag has been shaded? Give the fraction as simply as possible. ----------	**Shade in seven twelfths of the flag below.**	**In the three digit number below the last two digits have been hidden** **6**** **The three digit number is divisible by 3, 5 and 7. What is the number?** **6……..**	 **2** **2** **2**

A ruler costs x pence and a pen costs y pence. Which of the statements below represents the cost of 4 pens and 6 rulers? **Circle your answer** **10xy** **6x+4y** **6y+4x** **10(x+y)**	**When you add up two numbers you get 35, but when you subtract the two numbers you get 13. What are the two numbers?** **----------**	**Work out, simplifying your answer if possible** $\frac{3}{8} - \frac{1}{24}$ **-------**	**Do not write in this box** **1** **2** **3**
Change these fractions into decimals. **$\frac{1}{5}$ = …….** **$\frac{1}{500}$ = ……..** **$\frac{7}{500}$ = …….**	**In the first week of the screening of a new film a cinema sells 2140 tickets.** **In the second week it sells 320 less tickets than the first week.** **In the third week it sells 210 less tickets than the second week.** **How many tickets are sold over the three weeks?** **----------**		**3** **3**
A boy has to be in school by 8.35am. It takes him 25 minutes to get washed and dressed, 15 minutes to eat breakfast and then 18 minutes to walk to school. What is the latest time that he should get out of bed? **----------**	**Here are some number cards** **7** **5** **2** **3** **Using each card once only make the smallest possible even number** **…….** **Using each card once only make the smallest possible multiple of 6** **…….** **Using each card once only make a number as close as possible to 4000** **…….**		**2** **2** **2** **2**



Do not write in this box

The pie chart above shows the result of a survey on the ways in which pupils travelled to school.

What percentage of pupils travelled had a coach? **1**

……

What fraction of pupils walked to school? **1**

……

It was found that 12 walked to school.

How many pupils took a car to school? **2**

……

How many pupils did not catch the train to school? **2**

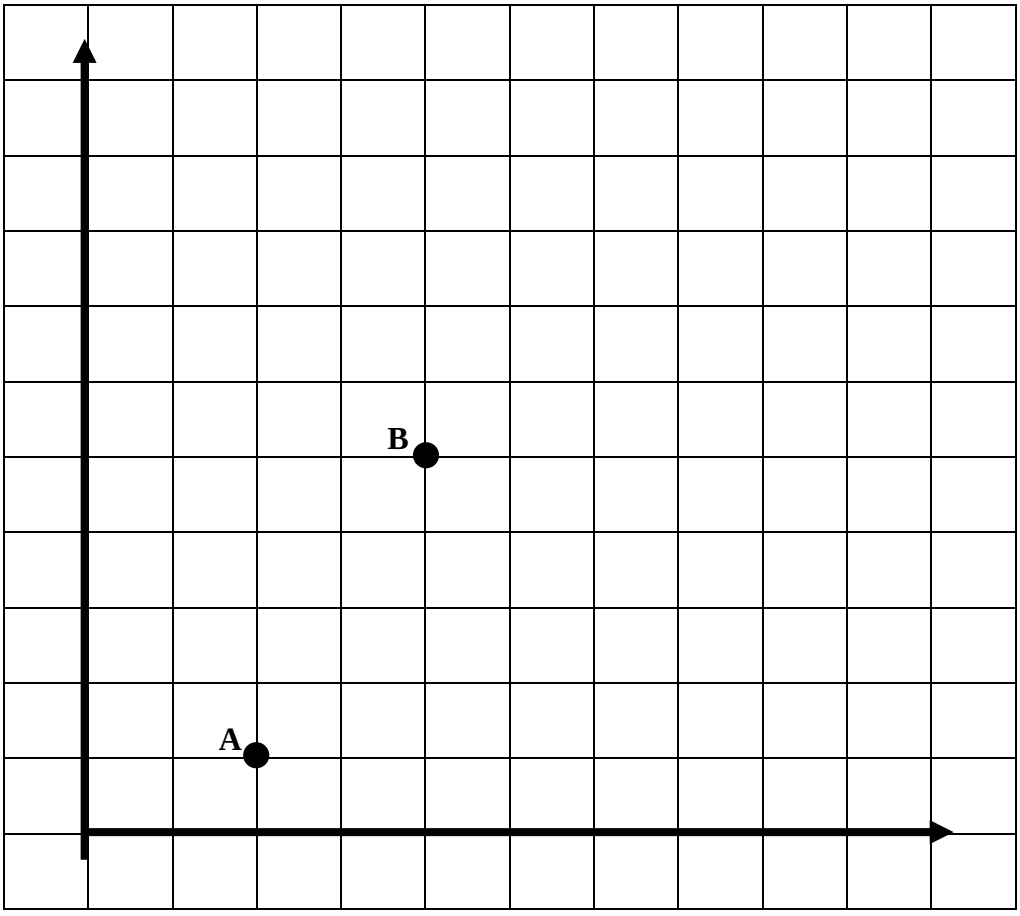
……

How many pupils were in the survey? **2**

……

In the following questions fill in the missing number. You can only use WHOLE numbers and you CANNOT USE the number1.

1…..6 + 2 5 8 4 3 4	8…..6 - 3 9 7 4 5 9	….. - 6 = 6 6	Do not write in this box 3
40 = 5 ….+ 5	(…… + 7) ÷ 9 = 9	4 x …… -- 13 = 55	3



On the axes above the point A is (2,1).

(a) What are the coordinates of B?

Answer = (……) **2**

(b) Mark on the point C which has coordinates (6,4) **1**

(c) If a fourth point D is plotted and ABCD makes a rectangle, what are the coordinates of D?

Answer = (……) **2**

Look at the pattern below

		TOTAL	
Row 1	**19 × 21**	**= 399**	**= 20 × 20 -- 1 × 1**
Row 2	**18 × 22**	**= 396**	**= 20 × 20 -- 2 × 2**
Row 3	**17 × 23**	**= 391**	**= 20 × 20 -- 3 × 3**
Row 4	**16 × 24**	**= 384**	**= 20 × 20 -- 4 × 4**

Fill in on the dotted line below Row 5

Row 5…… **2**

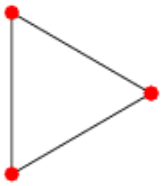
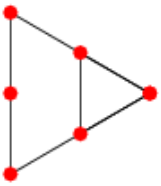
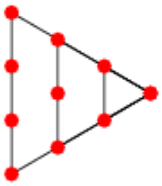
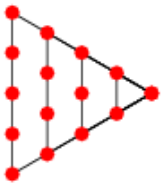
Which row will have a total of 300?

…… **1**

What is the total of row 12?

…… **1**

Now look at this second pattern

SHAPE	**1**	**2**	**3**	**4**	**5**
					
TOTAL	**1**	**3**	**6**	**10**	**15**

Each total is obtained by counting the number of dots in the triangle.

Draw a diagram for SHAPE 6 and give its total number of dots

TOTAL…… **2**

Which SHAPE number will have a total of 36?

…… **1**

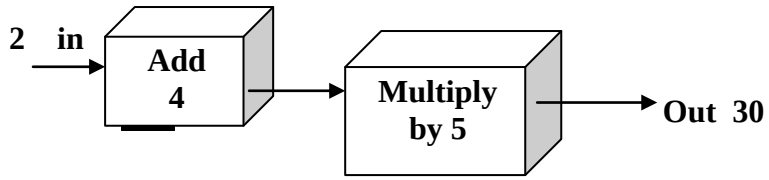
What is the total number of dots of SHAPE 12?

…… **1**

Do not write in this box

Tom and Sarah are playing with number machines.

Tom's machine adds 4 to any number put into it and then multiplies the result by 5



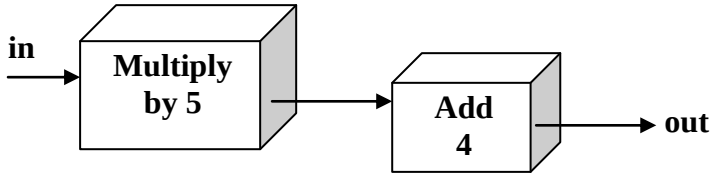
When he puts 2 in, out comes 30

Fill in the missing numbers for Tom's machine

in	out
2 →	30
3 →	…….
4 →	…….
8 →	…….
……. →	75

4

Sarah's machine multiplies by 5 and then adds 4



If Sarah puts in the number 2, what number comes out?…….

If Sarah puts in the number 7, what number comes out?……

2

They both put the same number into their machines.

If 45 comes out of Tom's machine what comes out of Sarah's?……... 2

If 19 comes out of Sarah's machine what comes out of Tom's?……... 2

Do not write in this box

THIS IS THE END OF THE EXAMINATION
NOW GO BACK AND CHECK YOUR WORK