SURNAME ..... FIRST NAME .....

JUNIOR SCHOOL ..... SENIOR SCHOOL .....

Independent Schools Examinations Board

COMMON ENTRANCE EXAMINATION AT 11+

MATHEMATICS

Monday 19 January 2009

Please read this information before the examination starts.

- This examination is 60 minutes long.
- Please try **all** the questions.
- Write your answers on the dotted lines.
- All working should be written on the paper.
- Tracing paper may be used.
- Calculators are not allowed.

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1. (a) Write down the sum of 28 and 35

Answer: ..... (1)

(b) Subtract 27 from 72

Answer: ..... (2)

(c) Which number is double 176?

Answer: ..... (2)

(d) What is the remainder when 265 is divided by 7?

Answer: ..... (2)

2. The population of Sumford is 9080

(i) Write 9080 correct to the nearest 100

Answer: ..... (1)

(ii) What is the value of the 9 in 9080? Write your answer in words.

Answer: ..... (1)

3. Ten calculators have a total mass of 1500 g.



(i) Write down the mass of one calculator.

Answer: ..... g (1)

(ii) (a) What is the total mass of 100 calculators?

Answer: ..... g (1)

(b) Write your answer to part (ii) (a) in kilograms.

Answer: ..... kg (1)

Each calculator costs £5.19

(iii) What is the cost of 10 calculators?

Answer: £ ..... (2)

4.



(i) Anne buys a cone and a drink.
How much does she spend?

Answer: £ ..... (2)

(ii) Brian buys 4 tubs.

(a) How much does he pay?

Answer: £ ..... (2)

He pays with a £10 note.

(b) How much change does he receive?

Answer: £ ..... (1)

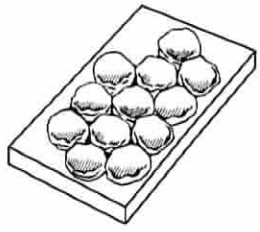
(iii) Caley buys 3 identical ice lollies and pays £1.92
What is the cost, in pence, of one ice lolly?

Answer: ..... p (2)

5. Sophie's grandmother has given her the family recipe to make a tray of 12 scones.

Recipe for a tray of 12 scones

2 cups flour
4 teaspoons baking powder
$\frac{1}{2}$ teaspoon salt
2 tablespoons sugar
3 tablespoons butter
1 egg
150 mℓ milk



(i) How much flour will she need to make 24 scones?

Answer: ..... cups (1)

(ii) How much salt will she need to make 60 scones?

Answer: ..... teaspoons (2)

(iii) Sophie has only half a litre of milk.

(a) Write half a litre in millilitres.

Answer: ..... mℓ (1)

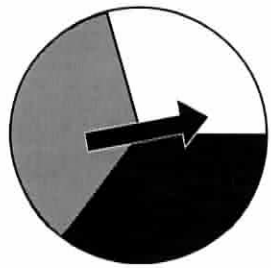
(b) What is the maximum number of trays of scones which she can make?

Answer: ..... trays (2)

6. Rupert has a spinner which is divided into three sections, coloured white, grey and black.

He spins the spinner 60 times and records the colour which the arrow points to.

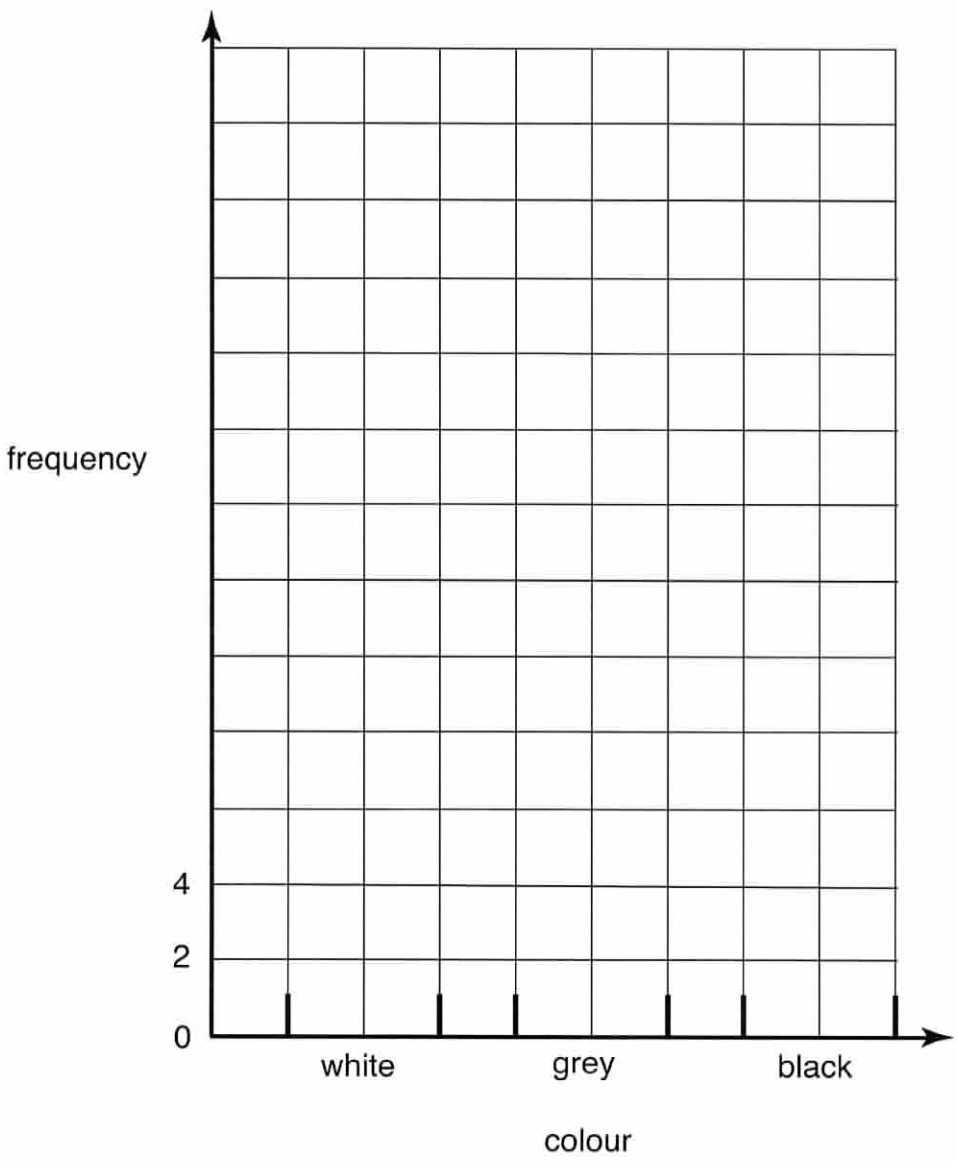
Here are his results:



colour	tally	frequency
white	𝍸 𝍸 𝍸 𝍸 I	21
grey	𝍸 𝍸 III	
black	𝍸 𝍸 𝍸 𝍸 𝍸 I	
	total:	60

(i) Complete the frequency table. (2)

(ii) Complete the bar chart to show his results.



(3)

Rupert thinks that the spinner is fair.

(iii) Do you agree?

..... because .....

.....

..... (1)

7. (i) Draw accurately triangle *ABC* in which

$AB = 10$ cm
angle $BAC = 35°$
$AC = 7$ cm

(Point A is already marked for you.)



(3)

(ii) Measure and write down the size of angle *B* in the triangle.

Answer: ..... ° (1)

8. The lunch break at Harry's school lasts 60 minutes.
Harry spends $\frac{1}{3}$ of his lunch break eating his lunch.



(i) How many minutes does he spend eating lunch?

Answer: ..... min (2)

He spends 75% of the remaining time playing with his friends.

(ii) How long does he spend playing with his friends?

Answer: ..... min (2)

(iii) What percentage of his total lunch break does Harry spend playing with his friends?

Answer: ..... % (1)

9. Arrange these distances in size order, from smallest to largest.

250 m **0.52 km** **0.5 km** **2.05 km** **502 m**

Answer: ....., ..., ..., ..., ... (3)

10. There are two maths classes in Year 6, called 6A and 6B.

	boys	girls	total
6A	14		
6B		6	18
total			48

(i) Complete the table showing the number of boys and girls in each class. (3)

(ii) Which class has a higher proportion of boys?

Answer: ..... (1)

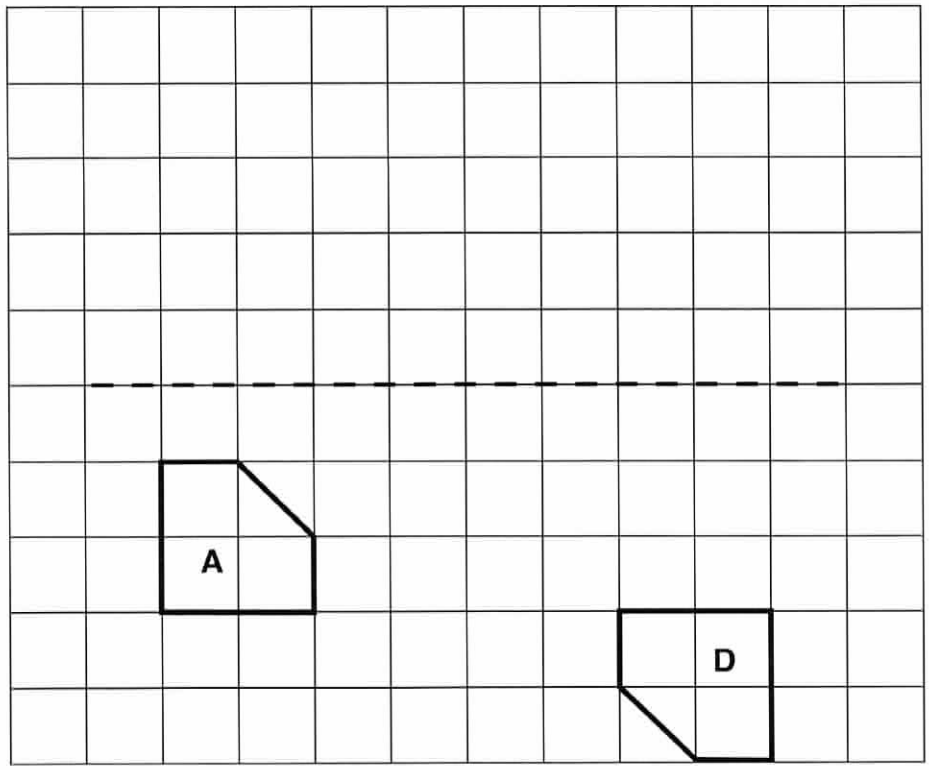
(iii) What fraction of the children in 6B are girls?
Give your answer in its simplest form.

Answer: ..... (2)

(iv) Some boys leave Year 6 to go to another school.
Half the total number of pupils in Year 6 are now boys.
How many boys have left the school?

Answer: ..... (1)

11. Shapes **A** and **D** are drawn on the centimetre-square grid below.



(i) Reflect shape **A** in the dotted line.
Label the new shape **B**. (2)

(ii) Translate shape **A** *6 units to the right* and *4 units up*.
Label the new shape **C**. (2)

(iii) Choose the word from the box below to describe the transformation from shape **A** to shape **D**.

reflection	**rotation**	**translation**

Answer: ..... (1)

(iv) Calculate the area of shape **A**.

Answer: ..... cm^2 (2)

12. The table below shows the maximum temperatures in New York City last year.

month	Jan	Mar	May	Jul	Sept	Nov
maximum temperature, in °C	3	9	21	29	24	11

(i) Use the information in this table to work out

(a) the range of temperatures

Answer: ..... °C (2)

(b) the median temperature

Answer: ..... °C (2)

In January, the lowest temperature was 7 °C colder than the maximum temperature for that month.

(ii) Calculate the lowest temperature in January.

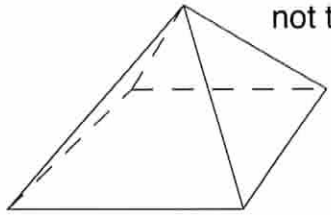
Answer: ..... °C (2)

13. (a) This is a square-based pyramid.

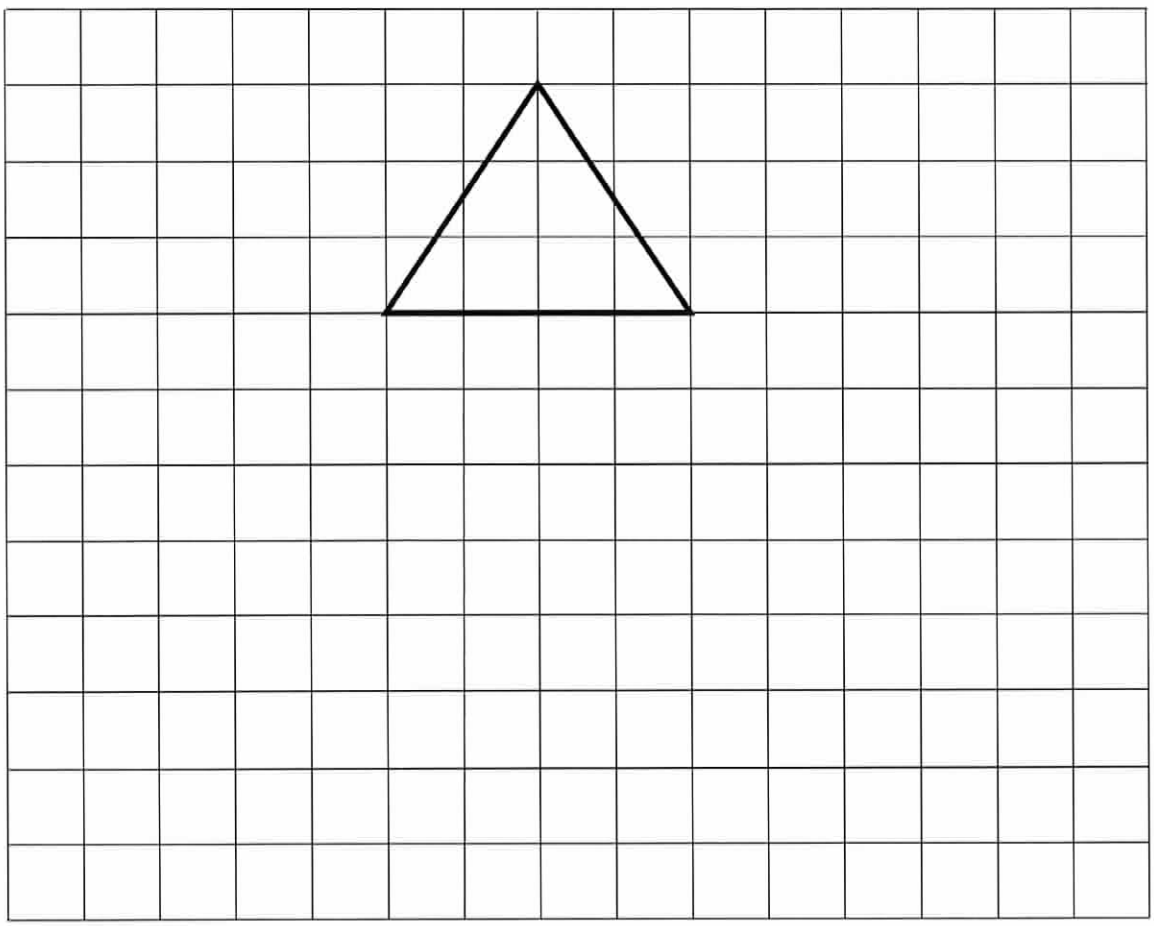
It has 5 faces, which are a square and four congruent isosceles triangles.

In the space below, draw an accurate net for this pyramid.

(One of the triangular faces has already been drawn for you.)



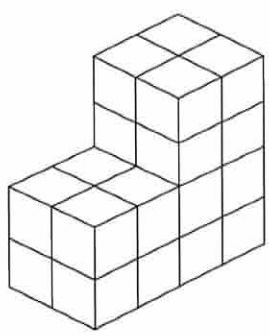
not to scale



(3)

(b) This solid shape is made from 1-cm cubes.

Calculate the volume of the shape.



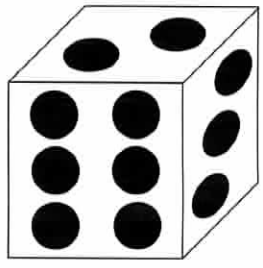
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Answer: ..... cm^3 (2)

14. Lucy has some fair dice.

She picks one and rolls it.

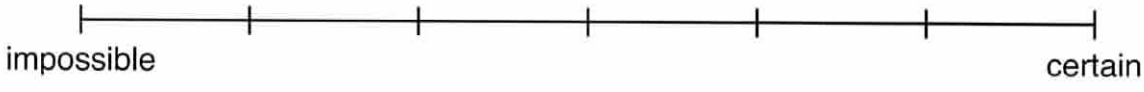
On the line below, mark the following probabilities with the letters shown:



A she gets an even number on the top face

B she gets a 6 on the top face

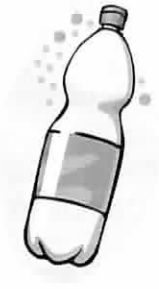
C she gets a number less than 7 on the top face



(3)

15. (a) The cost of a bottle of lemonade in four different shops is 42p, 38p, 40p and 36p.

Calculate the mean price of a bottle of lemonade.



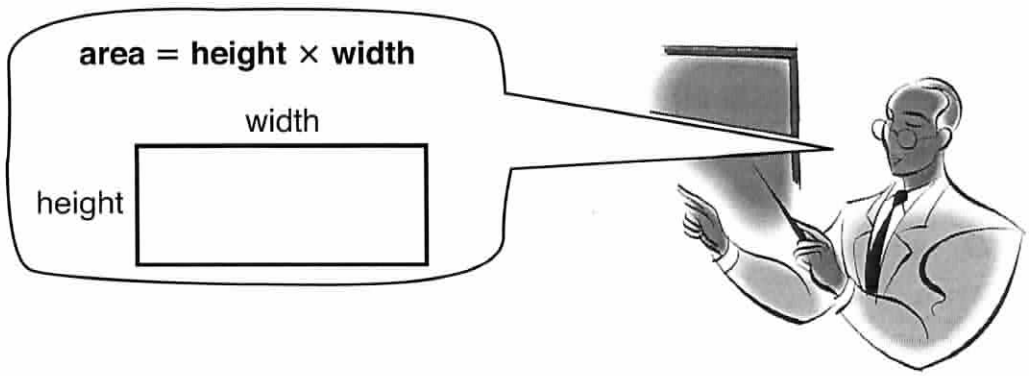
Answer: ..... p (3)

(b) Freshly-squeezed lemonade costs 57p a bottle.

How much would 13 bottles of this lemonade cost?

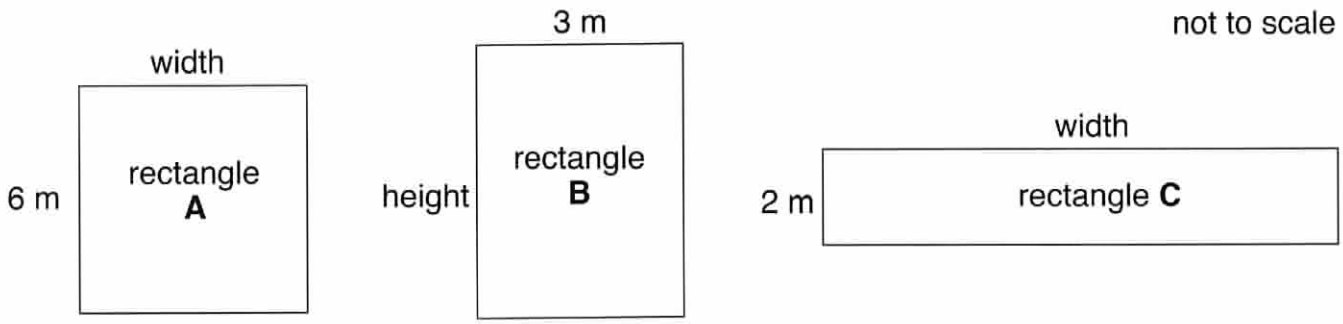
Answer: £ ..... (3)

16. The area of a rectangle can be found using the formula below:



The area of each of these rectangles is 24 m^2.

not to scale



(i) Complete the table below for each rectangle.

rectangle	area	height	width	perimeter
A	24 m^2	6 m	..... m	..... m
B	24 m^2	..... m	3 m	..... m
C	24 m^2	2 m	..... m	..... m

(6)

(ii) Write down the height and width of a rectangle with area 24 m^2 which has a larger perimeter than the 3 rectangles above.

Answer: height = ... m

width = ... m (2)

17. Here are some factors of 28:

1 2 4 . . . 14 28

(i) Write down the missing factor of 28

Answer: ..... (1)

(ii) Write down a factor of 28 which is also a prime number.

Answer: ..... (1)

(iii) Write down a factor of 28 which is also a square number.

Answer: ..... (1)

(iv) Add up all the factors and halve the total.
Write down your answer.

Answer: ..... (2)

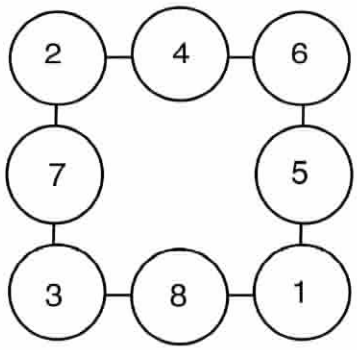
A perfect number is a special type of number.
If you add up all of its factors and halve the total, the result is the original number.

(v) Find a perfect number which is less than 10

Answer: ..... (2)

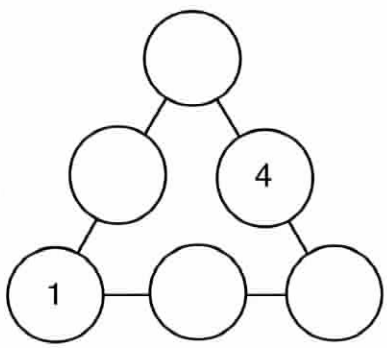
18. In each number puzzle below, the numbers along each side of the shape add up to the same total.

For example, in this number square each side adds to 12



(i) In this number triangle, the numbers 1, 2, 3, 4, 5 and 6 are used once each.

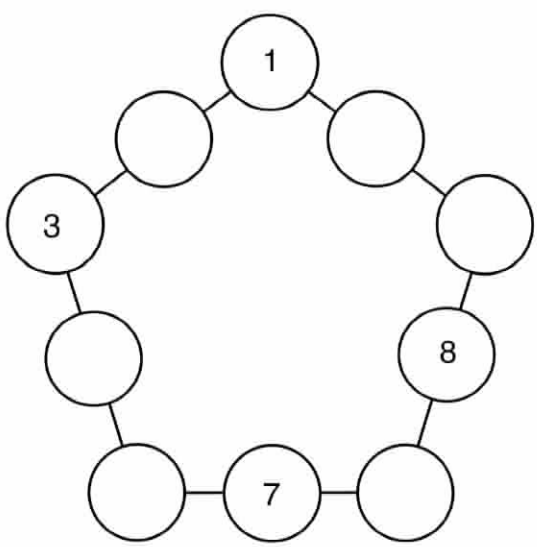
Complete the triangle so that the numbers along each side add up to 9



(3)

(ii) In this number pentagon, the numbers 1, 2, 3, 4, 5, 6, 7, 8, 9 and 10 are used once each.

Complete the pentagon so that the numbers along each side add up to 14



(3)

(Total marks: 100)