THE ENGLISH SCHOOL

ENTRANCE EXAMINATIONS 2011

MATHEMATICS **FIRST YEAR**

Time allowed: 1 hour and 30 minutes

* Answer ALL questions.
* The marks for each question are given at the end of the question.
* Show all necessary working on the question paper in the spaces provided and write your answers in the appropriate places.
* If you can not do a particular question, move to the next question without wasting time.
* Calculators are not allowed.
* Do not write in the right hand margin.
* The total number of marks is 100.

1. (a) Write down the number which is one hundred less than one hundred thousand.

Answer: .....
(1 mark)

(b) Write down the number which is one hundredth more than one tenth.

Answer: .....
(1 mark)

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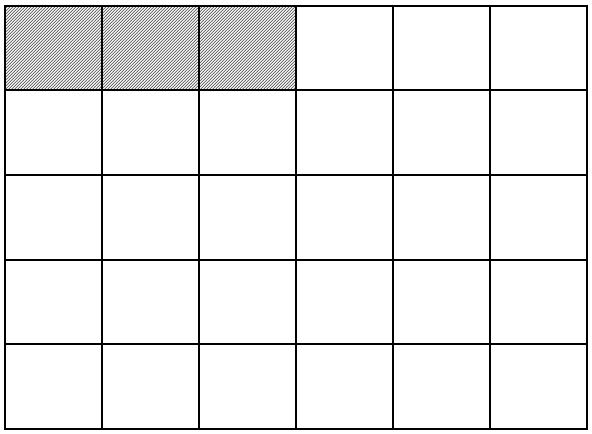
2. Answer this question by completing the rectangle below. The rectangle is divided into squares.



(a) What fraction of the rectangle is shaded?

Answer: .....
(1 mark)

(b) Shade as many squares as necessary so that $\frac{2}{5}$ of **all** the squares will be shaded.

Put a √ in $\frac{5}{9}$ of the squares which are now **not shaded**.

(2 marks)

(c) What percentage of all the **shaded** squares, are the unshaded squares that do not have √ in them?

Answer: .....%
(2 marks)

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3. Calculate the following using the correct order of operations.

(a) $6+5\times4-3\div2=$

Answer: .....
(1 mark)

(b) $8,25-5,25\div3=$

Answer: .....
(2 marks)

(c) $6\frac{1}{2}\div\left(5\frac{1}{5}-3\frac{1}{4}\right)=$

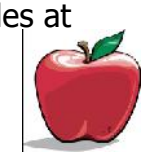
Answer: .....
(3 marks)

4. The fraction $\frac{1}{11}$ as a decimal number rounded to eight decimal places, is 0,09090909 . Complete the table.

Fraction	Decimal number rounded to **four** decimal places
$\frac{1000}{11}$	.....
$\frac{1}{11000}$	.....
.....	0,0303
.....	6,0606

(4 marks)

5. Mr Andreas sells groceries. He has bought 200 kilograms of apples at €0,75 per kilo and 150 kilograms of pears at €0,80 per kilo.



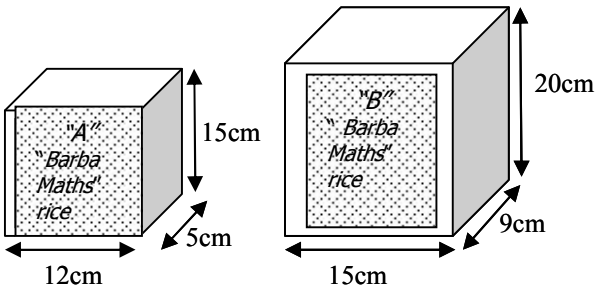
(a) If he manages to sell them all at €1,20 per kilo, how much profit will he make?

Answer: ..... euros

(b) If 10% of each type of fruit goes bad and cannot be sold and he manages to sell all the rest of the fruit, apples and pears, at €1,20 per kilo, how much profit will he now make?

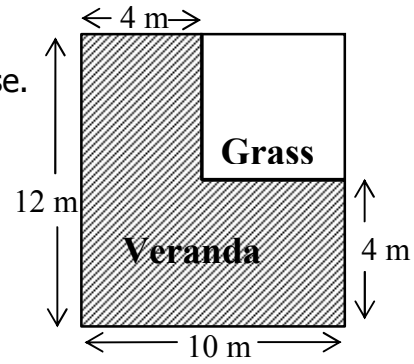
Answer: ..... euros
(7 marks)

6. The rice "*Barba Maths*" is sold in two different packages, package "*A*" and package "*B*". Each package "*A*" is sold at €3,50. Both packages are filled with rice, the price of which per cubic centimeter (cm^3) is the same for both packages. Find the selling price of one package "*B*".



Answer: ..... euros
(3 marks)

7. The diagram shows part of the yard of a house. There is an L-shaped veranda and an area which will be planted with grass.



(The diagram is not drawn accurately)

(a) Find the perimeter of the veranda.

Answer: ..... m
(1 mark)

(b) Find the area of the veranda.

Answer: ..... m^2
(2 marks)

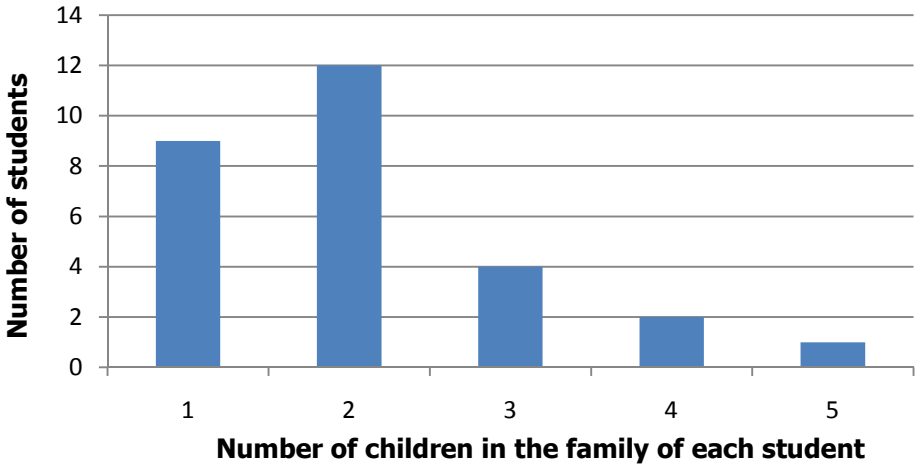
(c) The veranda will be covered with square tiles of side 40 cm. The tiles are sold in packets. Every packet contains 20 tiles and costs €35 . What is the smallest number of packets of tiles that must be bought to cover the veranda and how much will they cost?

Answer: ..... packets will cost ..... euros
(5 marks)

(d) The total cost of buying and planting the grass will be €720. If the grass is sold at €8,50 per square meter, how much will be paid for the actual planting of the grass?

Answer: ..... euros
(2 marks)

8. The students in class 6A conducted a survey to find out how many children there are in each student's family. All the students took part in this survey. The results of the survey are shown in the diagram.



(a) How many students are there in class 6A?

Answer: ..... students
(1 mark)

(b) What fraction of the students come from families with only one child?

Answer: .....
(1 mark)

(c) The school is giving out pocket diaries to every student and to each one of his or her brothers or sisters. How many pocket diaries will be needed for the class 6A?

Answer: ..... diaries
(2 marks)

(d) If someone chooses a student from this class at random (by chance), what is the probability that this student

(i) belongs to a family with 2 children only?

Answer: .....
(1 mark)

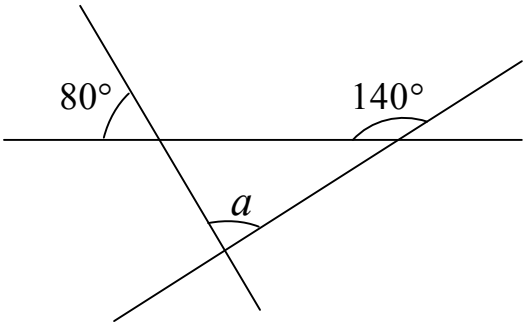
(ii) belongs to a family with 3 or more children?

Answer: .....
(1 mark)

9. Find the missing angles in the following diagrams.

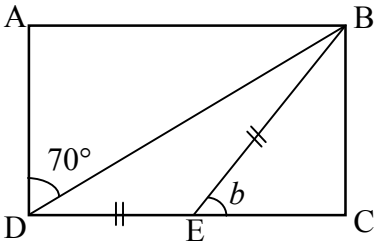
(The diagrams are not drawn accurately)

(i)



a = ... °

(ii) The shape ABCD is a **rectangle**.
DE = BE



b = ...°

(4 marks)

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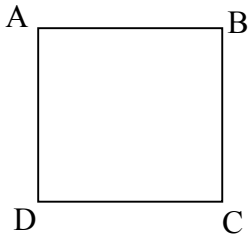
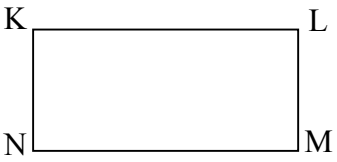
10. An electrician had a roll of wire of length 12,6 meters (m). He cuts from this roll , 3 pieces of length 56 centimeter (cm) each, 2 pieces of length $3\frac{3}{4}$ meters (m) each and 4 pieces of length 240 millimeter (mm) each. Work out how much wire is left on the roll and give your answer in meters.

Answer: ..... meters
(3 marks)

11.

(The diagrams are not accurately drawn)





The square ABCD and the rectangle KLMN have the same perimeter. The length of the rectangle is **double** its width. The side of the square is $2\frac{2}{5}$ centimeters (cm). Find the area of the rectangle.

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

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12. A dripping tap looses 1 milliliter (ml) of water every second. How many liters of water will be lost in one week (7 days)?

Answer: ..... liters
(2 marks)

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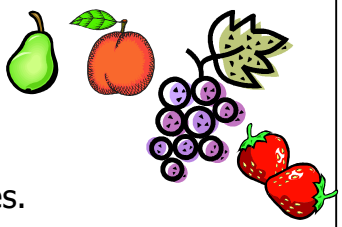
13. If a student writes all the numbers from 1 to 122 , how many times

will the student have to write the digit 2 ;

Answer: .....
(2 marks)

14. Fill in the missing numbers.



2 pears have the same weight as 3 peaches,
2 peaches have the same weight as 30 grapes,
5 grapes have the same weight as 2 strawberries.

90 grapes have the same weight as ..... pears.

30 strawberries have the same weight as ..... peaches.

(2 marks)

15. 60% of the children in the Nautical club "Nicosia at Sea" are boys. The number of girls in the club is 14 less than the number of boys. Find the total number of children in the club.

Answer: ..... children
(2 marks)

16. The coffee shop " Nice-Smelling Coffee" sells coffee in the following packets.

A packet of 100 grams 1,50 euro.

A packet of half a kilo 6,50 euro.

A packet of one kilo 12,00 euro.

(a) Find the smallest amount that somebody can pay for 700 grams of coffee.

Answer: ..... euros
(1 mark)

(b) Find the largest amount that somebody can pay for 1,5 kilos of coffee.

Answer: ..... euros
(1 mark)

(c) Mr Brown wants to buy coffee for his restaurant. What is the largest amount of coffee that he can buy for €95 ?

Answer: ..... kilos
(2 marks)

17. The shop "Maths Electronics" has a sale of 20% on all items.

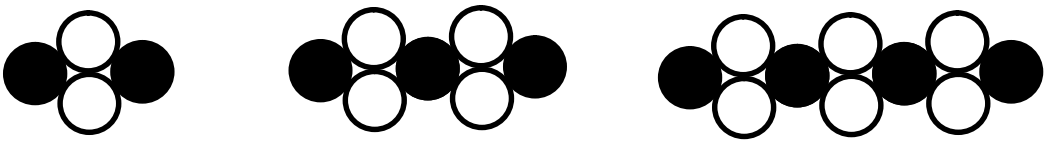
(a) The price of a mobile phone before the sales was €140.
What will be the sale price?

Answer: ..... euros
(2 marks)

(b) The price of a DVD player during the sale is €60 .
What was the original price before the sale?

Answer: ..... euros
(2 marks)

18. Julia is making various shapes with black and white beads using the same pattern. Complete the following table.



Shape 1 Shape 2 Shape 3

Shape	1	2	10	……..	……..
Number of black beads	2	3	……..	20	……..
Number of white beads	2	4	……..	……..	100

(3 marks)

19. An athlete walks for 7 hours and covers a distance of 31,5 kilometers (km). How many days will she take to walk a distance of 216 kilometers (km), if she walks for 8 hours every day at the same rate?

Answer: ..... days
(3 marks)

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20. The number of students in a school is greater than 350 and less than 400. When the students are put in groups of 9, 12 or 15, there are always 7 students left. How many students are there in the school?

Answer: .....
(3 marks)

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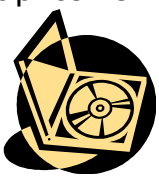
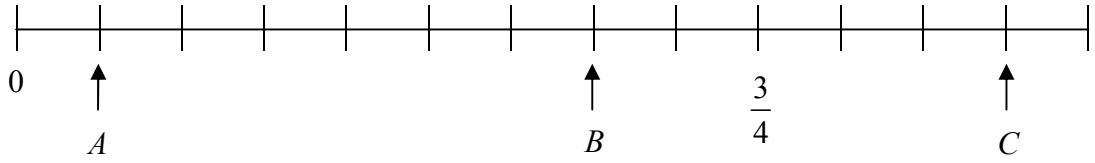
21. The owner of the shop "Maths Electronics" has worked out that if he sells each of 15 CDs at a particular price, then he will get €165 but he will make a loss. If however he sells each CD at €3 more than that price he will make a total profit of €30.
Find how much the owner pays for each CD (cost price).



Answer: ..... euros
(3 marks)

22.



Find the number that each arrow points to and calculate $\frac{B}{A+C}$.

Answer: A = ... , B = ... , C = ... , $\frac{B}{A+C}$ = ...

(3 marks)

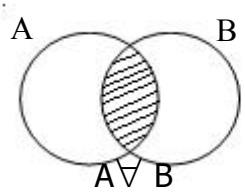
23. In Panayiotis' school they have drawn circles in the yard so that they can learn the dances for Open Day. They are using a code for remembering the steps.

A means: You are inside circle A.
B means: You are inside circle B.
A* means: You are outside circle A.
B* means: You are outside circle B.

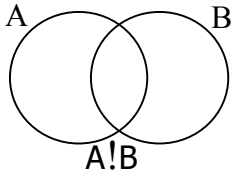
A∀ B means: You are inside circle A **and** inside circle B.

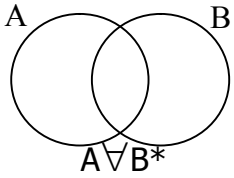
A!B means: You are either inside circle A or inside circle B or inside both.

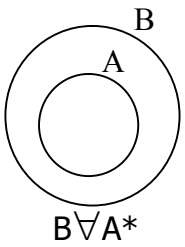
An example is given: The shaded region shows where a student can be in this case.



Shown below, are three drawings of the dances. Using the code that has been given, shade the region to show where a student can be in each case.







(3 marks)

24. In an oral competition of "Arithmetic" the children who are taking part in the competition have to answer to as many questions as possible in 10 minutes. For every correct answer they score 4 points.

For every wrong answer they loose 3 points.

(a) Find the total score of a student who has:

(i) 13 correct answers and 9 wrong answers.

Answer: ..... points
(1 mark)

(ii) 9 correct answers and 11 wrong answers.

Answer: ..... points
(1 mark)

(b) Andrea, Michael and Daniel each scored a total of 12 points.

(i) Andrea had 9 correct answers. How many answers did she get wrong?

Answer: ..... wrong answers
(1 mark)

(ii) Michael had 4 wrong answers. How many answers did he get correct?

Answer: ..... correct answers
(1 mark)

(iii) Daniel had the same number of correct and wrong answers.
How many questions did she answer?

Answer: ..... questions
(2 marks)

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25. (a) Put a circle around the answer with the largest result.
(You do not need to show any calculations.)

$\frac{1}{3456}+\frac{1}{3457}$ $\frac{1}{3456}\div\frac{1}{3457}$ $3456\times\frac{1}{3457}$

(1 mark)

(b) Find the answer to the following:

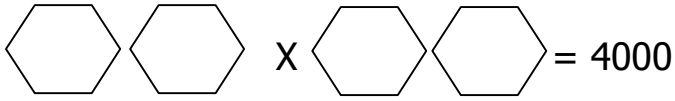
(i) $(2+4+6+8+10+\ldots+98+100)\div(1+2+3+4+5+\ldots+49+50)$

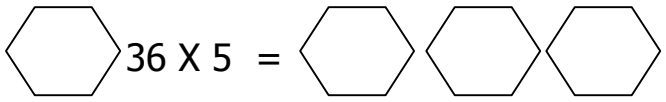
Answer: .....
(1 mark)

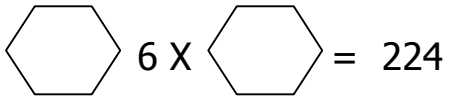
(ii) $(1001+1002+1003+\ldots+1049+1050)-(1+2+3+\ldots+49+50)$

Answer: .....
(1 mark)

(c) Write a digit in each hexagon so that the following calculations are correct.







(3 marks)

END