THE GRAMMAR SCHOOL

ENTRANCE EXAMINATIONS

21 MARCH 2022

SUBJECT :	MATHEMATICS
TIME :	1 HOUR AND 15 MINUTES

Instructions to students.

1. You are not allowed to use any kind of a calculator.

2. Using a pen is preferable, but if you wish you can use a pencil.

3. Correction fluid (tippex) or tape is not allowed

4. You are not allowed to talk to one another.

5. Read the instructions of each question carefully.

6. If you don't know a question, go to the next one.

7. Show all the workings.

8. The examination consists of 18 questions and you must answer **ALL** of them.

9. The total number of marks is 100.

1. Evaluate the following.

(a) $120 + 4 \times (35 + 50 \div 5) =$

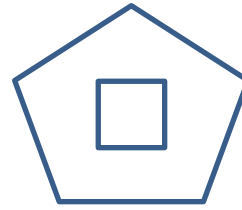Answer: _____ (4)
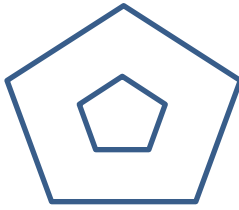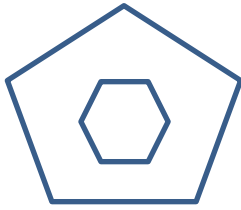
(b) $2.5 \times 6 - \frac{1}{2} - 12 \div 3 =$

Answer: _____ (4)
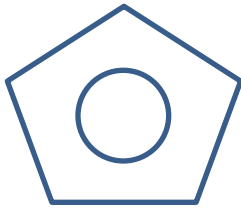
(c) $5\frac{1}{3} \div 2 - \frac{1}{4} =$

Answer _____ (4)

(Total 12 Marks)
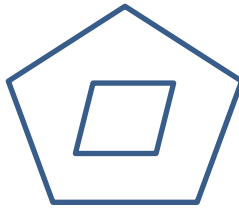
2. (a) The first three shapes in a pattern are given below.
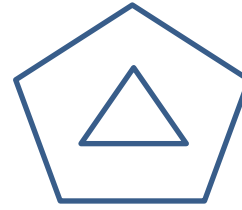
Which one of the following shapes, A, B or C is the next one in the pattern?

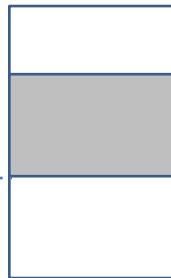A   B   C

Answer: _____ (2)

(b)

D   E   F

$\frac{5}{8}$ of rectangle D is shaded.

75% of rectangle F is shaded.

What fraction of rectangle E is shaded?

Answer: _____ (4)

(Total 6 Marks)

3. Alexandros walked for a charity. He was sponsored for €5 for every 0.5 km that he walked. At the end of the walk, he collected €80.

How many kilometres did he walk?

Answer:_____ (3)

(Total 3 Marks)

4. Eleni bought 4 kilograms of strawberries and paid with a €50 note.
   She got €33.40 change. Find the price of the strawberries per kilogram.

Answer: _____ (4)

(Total 4 Marks)

5. A book is made up of 140 pages. Each page has 22 lines and each line has 10 words. This book will be reprinted and each page of the new book will have 25 lines and each line will have 8 words.

How many pages will the new book have?

Answer: _____ (4)

(Total 4 Marks)

6. A train that is travelling at a speed of 80 kilometres per hour, needs 24 minutes to travel from point *A* to point *B*. If the train repeats the same route at a speed of 60 kilometres per hour, for how long will it be travelling?

Answer: _____ (3)

(Total 3 Marks)

7. George has 42 blue, 56 red and 28 green marbles. He wants to put all of them in boxes.

(a) What is the maximum number of identical boxes that he can make?

Answer: _____ (3)

(b) How many green marbles will there be in each box?

Answer: _____ (2)

(Total 5 Marks)

8. Maria places books on shelves. She has placed $\frac{1}{3}$ of them. If she places 8 more books, then she will have placed half of the books on the shelves.
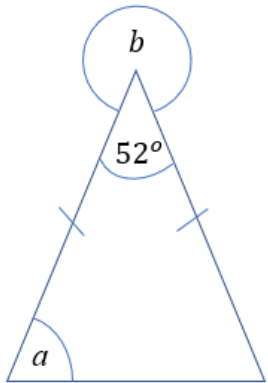
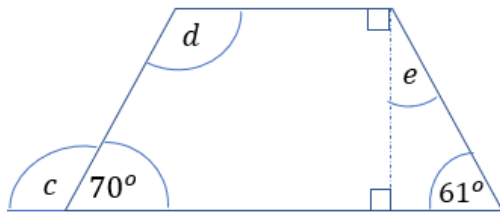How many books are there in total?

Answer: _____ (3)
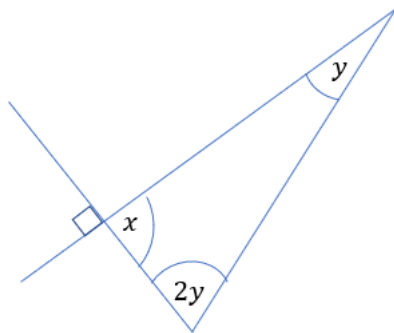
(Total 3 Marks)

9. Find the angles.

(a)

Answer: $a =$ _____ , $b =$_____ (2)

(b)

Answer: $c =$ _____ , $d =$_____ , $e =$_____ (3)

(c)

Answer: $x =$ _____ , $y =$_____ (3)

(Total 8 Marks)

10. How many squares are there in the following shape?
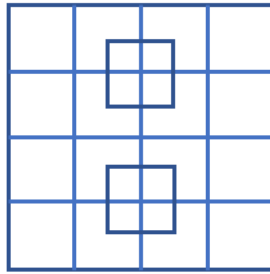
Answer: _____ (3)

(Total 3 Marks)

11. (a) An electronics store offers 30% discount on all items.
A microwave has a discount of €27.
Find its original price.

Answer: _____ (3)

(b) A football team has won 10 out of the 12 matches they have played up to now.
How many of the remaining 8 matches do they have to win so that they have 80%
success for the whole year?

Answer: _____ (4)

(Total 7 Marks)

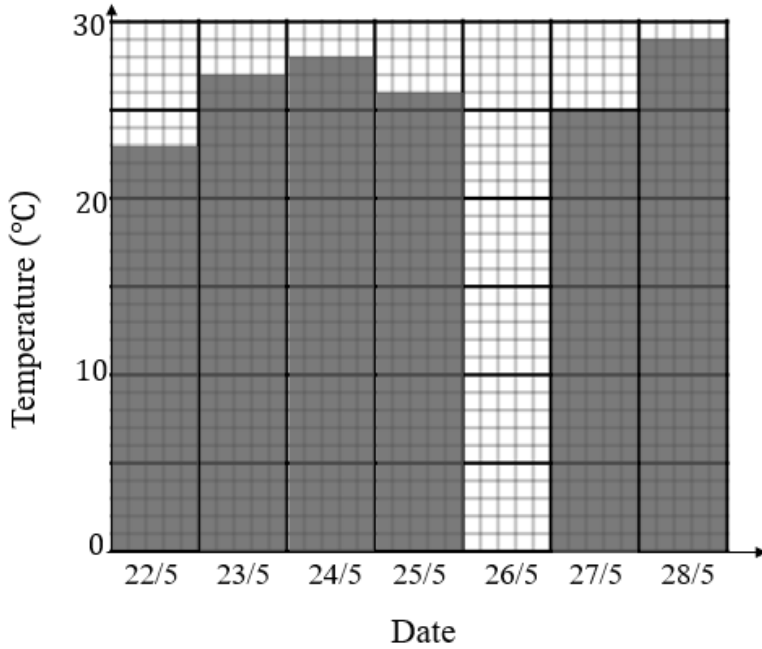12. The Cyprus Meteorological Department recorded the temperature in Nicosia during seven consecutive days in May. All the recordings were made at 2 p.m. and are presented on the bar chart and the table below.

Date	Temperature (°C)
22/5	23
23/5	27
24/5	
25/5	26
26/5	24
27/5	25
28/5	29

(a) Complete the bar chart and the table. (2)

(b) Which was the highest temperature recorded during this period of time?

Answer: _____ (1)

(c) Find the average temperature for this period of time.

Answer: _____ (3)

(Total 6 Marks)

13. There are 6 apples, 3 pears and 4 oranges on a plate.

    (a) Lucas will take one fruit at random and eat it.

       What is the probability that the fruit he will eat is

       (i) an apple,

                                    Answer: _____ (2)
       (ii) a banana?

                                    Answer: _____ (1)

     (b) Let us assume that Lucas ate an apple. What is the probability that Andreas will then
         take an orange at random?

                                    Answer: _____ (2)

                                                    (Total 5 Marks)
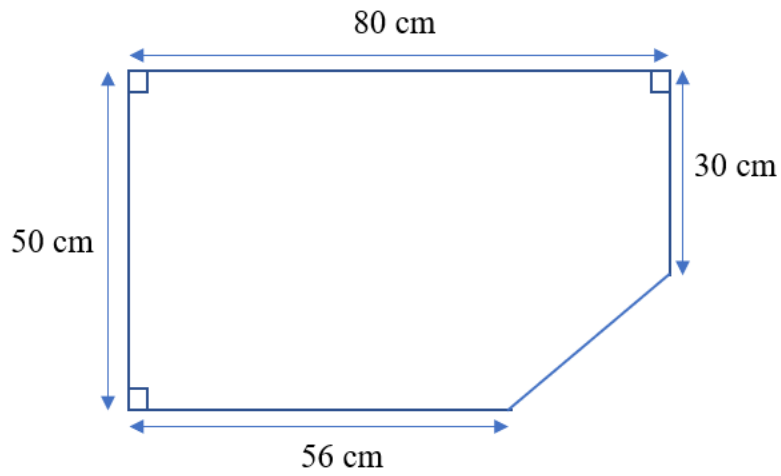
14. A florist bought 8 dozen red roses for Valentine's Day at 75 cents each. With these
    roses, he made bunches of six and sold each bunch at €10.

    What was his profit from the sale of all the roses?

                             Answer: _____ (6)

                                                    (Total 6 Marks)

15.

80 cm

50 cm

30 cm

56 cm

Find the area of the above shape.
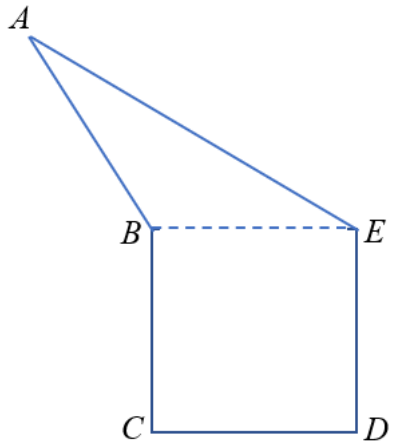
Answer: _____ (7)

(Total 7 Marks)

16. Vasilis, Christina and Elina have a total of €240. Elina has as much money as Vasilis and Christina have together, while Christina has twice as much as Vasilis.

How much money does each one of them have?

Vasilis: _____ , Christina: _____ , Elina: _____ (5)

(Total 5 Marks)

17. The shape *ABCDE* given below consists of a triangle *ABE* and a square *BCDE*.

(a) Given that the area of the square is 25 cm^2, find the length of the side of the square.

Answer: _____ (2)

(b) The triangle *ABE* and the square *BCDE* have the same perimeter.

Find the perimeter of the shape *ABCDE*.

Answer: _____ (3)

(Total: 5 marks)

18. Marina prepared 80 cakes to sell. Of them, 24 were chocolate cakes, 16 were lemon cakes and the rest were vanilla cakes.

Marina sold

all of the chocolate cakes
$\frac{3}{4}$ of the lemon cakes
60% of the vanilla cakes

The profit made by the sale of each type of cake is given on the table below:

Type of cake	Profit made from the sale of each cake
Chocolate	€2.20
Lemon	€1.80
Vanilla	€2.00

Find the total profit made from Marina's sale.

Answer: _____ (8)

(Total 8 Marks)

END