THE GRAMMAR SCHOOL

ENTRANCE EXAMINATIONS

4 MARCH 2024

SUBJECT :	MATHEMATICS
TIME :	1 HOUR AND 30 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 20 questions and you must answer **ALL** of them.
9. The total number of marks is 100.

1. Evaluate the following.

(a) $60 - 2 \times (28 \div 4 + 3) =$

Answer: _____ (4)

(b) $6 \times \frac{1}{3} - 120 \div 200 =$

Answer: _____ (3)

(c) $8\frac{1}{3} \div 5 - \frac{1}{2} + \frac{1}{3} =$

Answer: _____ (5)

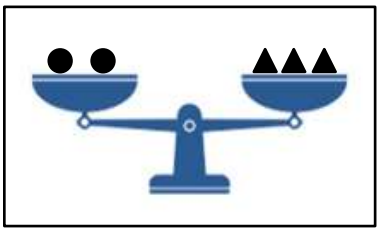
(Total 12 Marks)

2. (a) Find the missing number in the pattern.

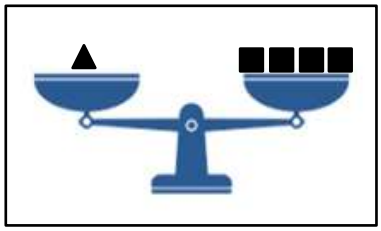
7, 8, 10, 14, 22, ____

Answer: _____ (2)

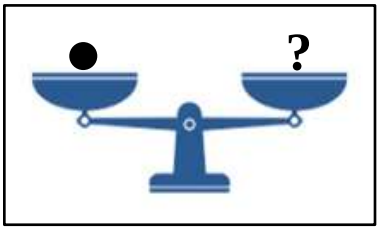
(b) Three scales are shown below.



SCALE 1



SCALE 2



SCALE 3

SCALE 1 and SCALE 2 are balanced.

On the right-hand side of SCALE 3, only squares will be added.

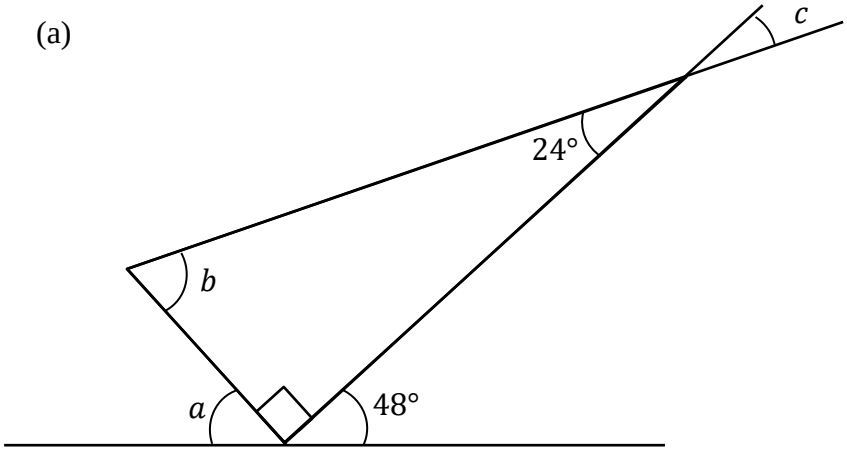
Find the number of squares that need to be added so that SCALE 3 is balanced.

Answer: _____ (2)

(Total 4 Marks)

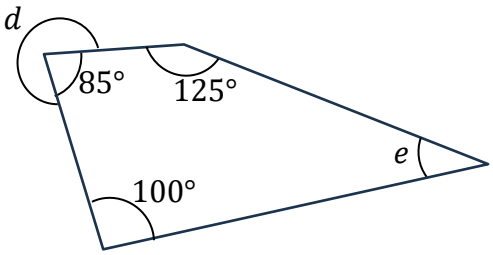
3. Find the missing angles.

(a)



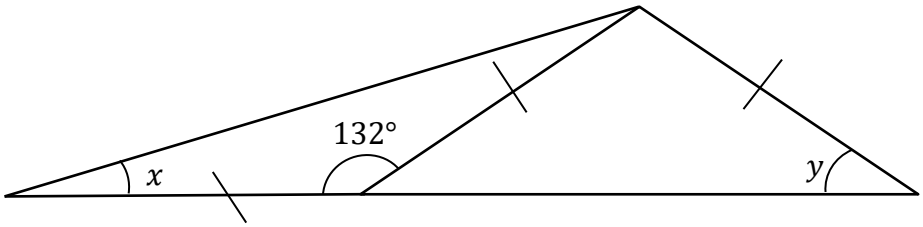
Answer: $a =$ _____° , $b =$_____°, $c =$_____° (3)

(b)



Answer: $d =$_____°, $e =$_____° (2)

(c)



Answer: $x =$ _____° , $y =$_____° (2)

(Total 7 Marks)

4. Dimitris is eight years and five months old. Alexia is two years and nine months older than Dimitris.

Find Alexia's age. Give your answer in years and months.

Answer: _____ years and _____ months (3)

(Total 3 Marks)

5. When the station clock shows 5:30 a.m., three buses depart for their route.
The first bus takes 45 minutes to return to the station, the second bus 60 minutes and the third bus 40 minutes.

(a) When the three buses meet again for the first time at the station, how many minutes will have passed?

Answer: _____ (2)

(b) What time will the station clock show, when the three buses meet again for first time at the station?

Answer: _____ (2)

(Total 4 Marks)

6. The ages of the children in a family are 15, 17, 24 and 8.

(a) Find the average age of the children.

Answer: _____ (3)

(b) What will the average age of the children be after 6 years?

Answer: _____ (1)

(Total 4 Marks)

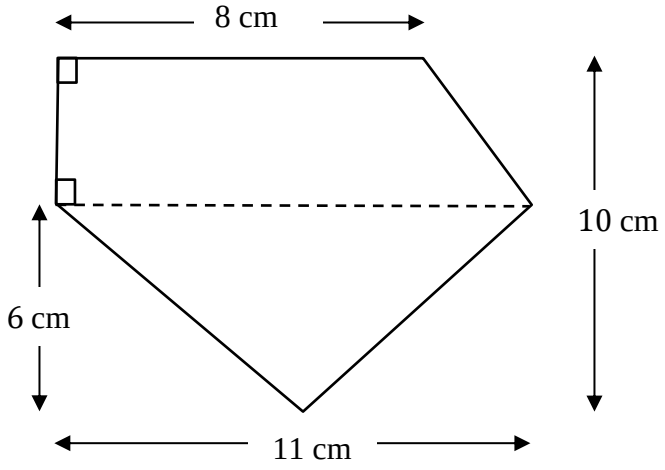
7. Pantelis bought an apartment and paid €195 000.
He made repairs to the apartment that cost him €5 000.
He then sold the apartment for €252 800.

Find the percentage profit Pantelis made.

Answer: _____ (4)

(Total 4 Marks)

8. Find the area of the shape below.



Answer: _____ (7)

(Total 7 Marks)

9. A car is travelling at a constant speed of 81 km per hour.

What distance will it travel in 20 minutes?

Answer: _____ (2)

(Total 2 Marks)

10. (a) In a box there are 6 black balls, 7 white balls and 5 red balls.

Savvas takes a ball at random from the box, notes its colour and places it back in the box.

What is the probability that the ball he chooses from the box is:

(i) black,

Answer: _____ (2)

(ii) yellow?

Answer: _____ (1)

Savvas places 2 more white balls in the box and takes one ball at random from the box.

(b) Find the probability that the ball he chooses is white.

Answer: _____ (2)

(Total 5 Marks)

11. A rectangle has length 18 cm and width 16 cm.

If we decrease the width of the rectangle by 7 cm, how many cm do we need to increase its length so that its area remains the same?

Answer: _____ (5)

(Total 5 Marks)

12. (a) 25% of a number is 14. What is $\frac{2}{7}$ of the same number?

Answer: _____ (3)

(b) A pizza is divided into 24 equal pieces.

Angela ate $\frac{1}{8}$ of the pizza and Harry ate $\frac{1}{3}$ of the remaining pizza.

How many more pieces of pizza did Harry eat than Angela?

Answer: _____ (4)

(Total 7 Marks)

13. Telephone company A, charges each customer that has a contract with them, a fixed monthly charge and additional charges for calls are made, based on the table below:

TELEPHONE COMPANY A
Fixed monthly charge: € ?
Charge per minute for calls within Cyprus: € 0.20
Charge per minute for international calls: € 0.85

Aris has a contract with telephone company A.

In February Aris made calls within Cyprus lasting 2 hours and international calls lasting 48 minutes.

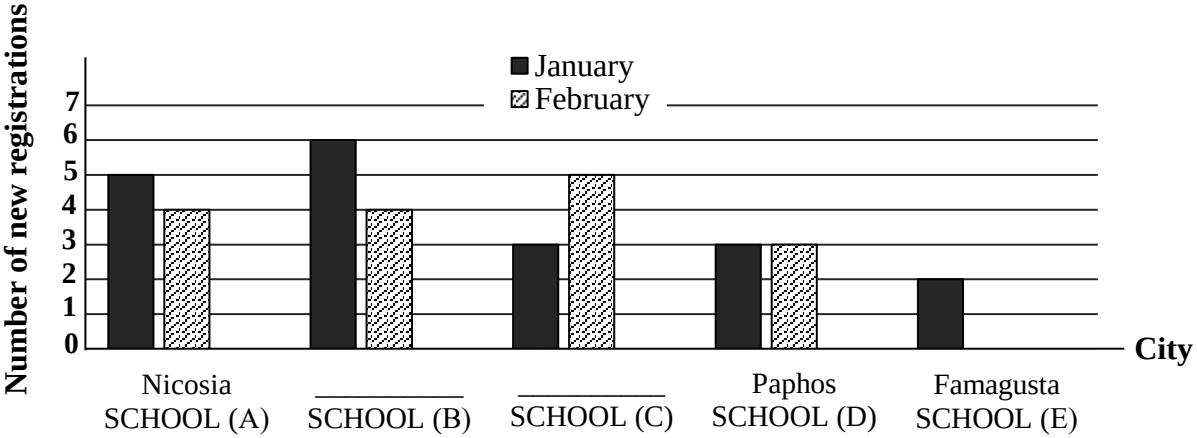
If his bill for February was €74.80, what is the fixed monthly charge of telephone company A?

Answer: _____ (5)

(Total 5 Marks)

14. Mr Panayiotis owns five dance schools, one in each city of Cyprus: Larnaka, Nicosia, Limassol, Paphos and Famagusta.

The incomplete bar chart below shows the new student registrations of each school for the months of January and February.



The following information is provided:

- Limassol had twice as many new registrations as Larnaka in January.
- The new registrations in Famagusta in February were equal to the total new registrations in Paphos for both months.

The names of the cities of Limassol and Larnaka are missing from the bar chart.

(a) Fill in the bar chart with the name of the city that corresponds to SCHOOL (B) and to SCHOOL (C). (2)

(b) Find the number of new registrations in Famagusta for the month of February.

Answer: _____ (1)

(c) Using your answer to part (b), complete the bar chart.

(1)

(d) Write down the name of the city with the fewest total new registrations.

Answer: _____ (1)

(Total 5 Marks)

15. Marilena will make cookies to sell at a charity event.
The cookies will be sold in bags, where each bag will contain 4 cookies.
She needs $2\frac{1}{2}$ cups of flour to make 8 cookies.

How many cups of flour does Marilena need to make 12 bags of cookies?

Answer: _____ (4)

(Total 4 Marks)

16. A farmer picked 80 kg of apples.
He sold 58 kg for €1.20 per kg. He threw away 10 kg because they were rotten.
He sold the remaining apples for 95 cents per kg.

How many euros did he collect in total?

Answer: _____ (4)

(Total 4 Marks)

17. A plane has 210 passengers, men, women, and children.

140 of the passengers are men and children.

182 of the passengers are women and children.

How many of the passengers are children?

Answer: _____ (3)

(Total 3 Marks)

18. The students at a school have to participate in only one of the three clubs available.

20% of the students participate in the chess club, $\frac{4}{15}$ of the students in the music club and the remaining 480 students of the school in the sports club.

Find the total number of students in the school.

Answer: _____ (6)

(Total 6 Marks)

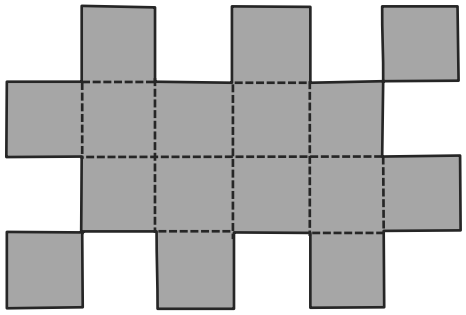
19. Christopher bought 2 ice creams and 3 bananas. The price of each ice cream is twice the price of each banana. He paid a total of €4.55.

How much does each ice cream and each banana cost?

Ice cream: _____, Banana: _____ (4)

(Total 4 Marks)

20. The shape below consists of identical squares.
The area of the shape is 144 cm^2.



Find the perimeter of the shape.

Answer: _____ (5)

(Total 5 Marks)

END