



# THE GRAMMAR SCHOOL

## ENTRANCE EXAMINATIONS

**13 MARCH 2023**

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)  $3 + 2 \times (17 - 7 \times 2) + 8 \div 4 =$

Answer: \_\_\_\_\_ (5)

(b)  $7 - 2\frac{1}{3} - 8 \times 0.25 =$

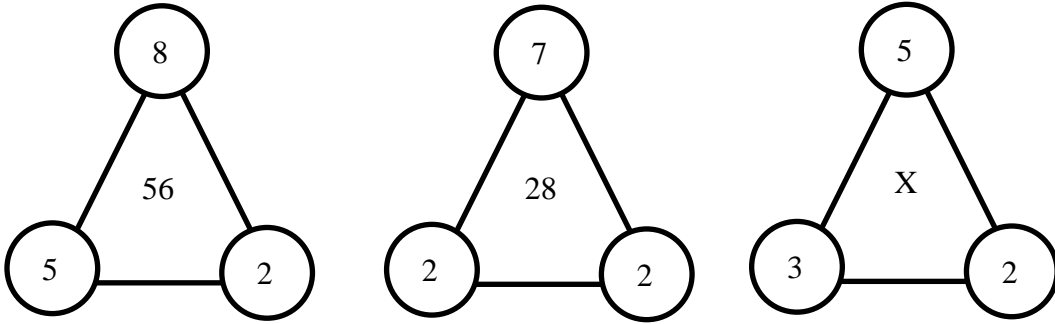
Answer: \_\_\_\_\_ (4)

(c)  $5\frac{1}{4} \div 7 + \frac{5}{6} =$

Answer: \_\_\_\_\_ (5)

**(Total 14 Marks)**

2. (a) Three shapes in a pattern are given below.



Find the value of X.

Answer: \_\_\_\_\_ (2)

(b) Which of the following numbers (A, B, C or D) is closer to 0.4?

**A**  $\frac{401}{10\ 000}$     **B** 41%    **C** 0.45    **D**  $\frac{401}{1000}$

Answer: \_\_\_\_\_ (2)

**(Total 4 Marks)**

3. In an event for the collection of food for earthquake victims, the employees of a company managed to collect 45 packets of pasta, 18 packets of flour and 54 packets of biscuits.

(a) What is the maximum number of identical boxes of food that they can make using all the food collected?

Answer: \_\_\_\_\_ (2)

(b) How many packets of biscuits will there be in each of the above boxes?

Answer: \_\_\_\_\_ (2)

**(Total 4 Marks)**

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4. Savvas bought a used electric car that cost €18000.  
Then he needed to spend €2000 more on repairs.

Find how much he has to sell it for in order to make a profit of 30%.

Answer: \_\_\_\_\_ (4)

**(Total 4 Marks)**

5. Andreas needs 7 tonnes of pebbles to cover a region with an area of  $100 \text{ m}^2$ .

Find how many tonnes of pebbles Andreas will need to cover a squared region with a side length of 40 m.

Answer: \_\_\_\_\_ (4)

**(Total 4 Marks)**

6. The duration of a movie is 90 minutes. During the screening of the movie there is an additional 15 minute break. The movie starts at 3:50 in the afternoon.

What time will it end?

Answer: \_\_\_\_\_ (3)

**(Total 3 Marks)**

7. Nikos spends 40% of his monthly salary on rent and  $\frac{1}{2}$  of his monthly salary on other expenses. He saves the rest of the money in the bank. He saved a total of €800 in 5 months.

Find Nikos' monthly salary.

Answer: \_\_\_\_\_ (4)

**(Total 4 Marks)**

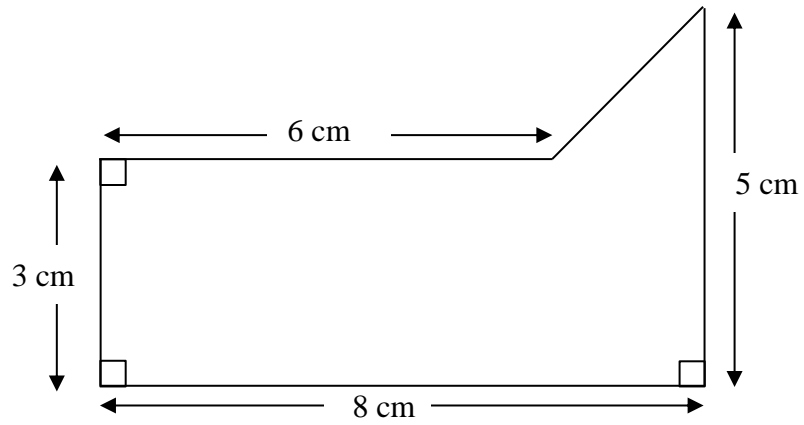
8. Some workers must paint the walls of a building. In order to finish their work, they estimated that they will need to paint 5 hours each day for 8 days.

If they painted at the same rate for 4 hours each day, how many more days would they need to finish their work?

Answer: \_\_\_\_\_ (4)

**(Total 4 Marks)**

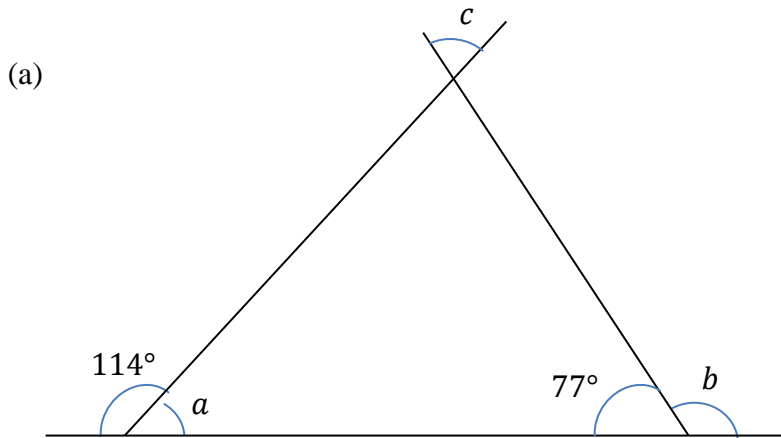
9. Find the area of the following shape.



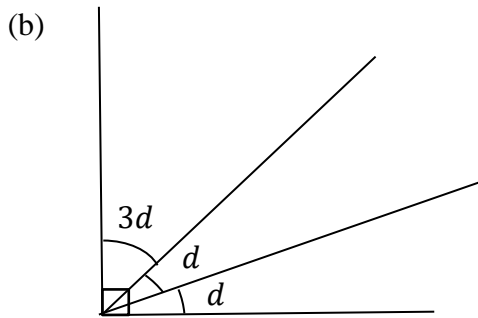
Answer: \_\_\_\_\_ (5)

**(Total 5 Marks)**

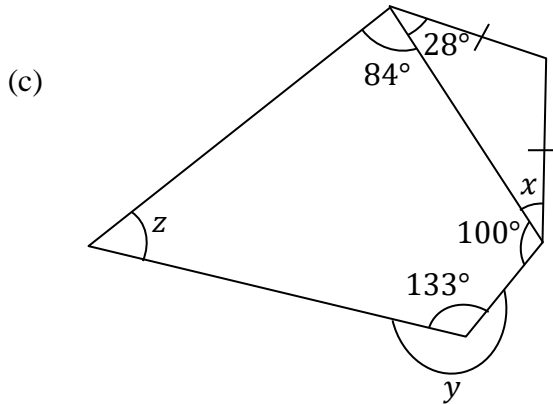
10. Find the angles marked with letters.



Answer:  $a = \underline{\hspace{2cm}}^\circ$ ,  $b = \underline{\hspace{2cm}}^\circ$ ,  $c = \underline{\hspace{2cm}}^\circ$  (3)



Answer:  $d = \underline{\hspace{2cm}}^\circ$  (2)

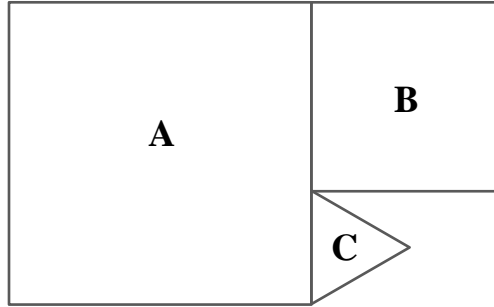


Answer:  $x = \underline{\hspace{2cm}}^\circ$ ,  $y = \underline{\hspace{2cm}}^\circ$ ,  $z = \underline{\hspace{2cm}}^\circ$  (3)

**(Total 8 Marks)**



11. The following shape consists of 2 squares, A and B and 1 equilateral triangle C.  
Square A has an area of  $64 \text{ cm}^2$  and square B has a perimeter of 20 cm.



Find the perimeter of the equilateral triangle C.

Answer: \_\_\_\_\_ (4)

**(Total 4 Marks)**

12. Two brothers, Alexandros, 24 years old, and Christos, 16 years old, won the amount of €120000 in a lottery. They will share this amount of money in the ratio of their ages.

Work out how much money will Alexandros get.

Answer: \_\_\_\_\_ (3)

**(Total 3 Marks)**

13. (a) In a packet of nuts A, there are 25 almonds, 20 hazelnuts and 55 walnuts.

Maria will choose one nut at random and she will eat it.

What is the probability that the nut that she will eat is

(i) an almond,

Answer: \_\_\_\_\_ (2)

(ii) a peanut?

Answer: \_\_\_\_\_ (1)

(b) In another packet of nuts B, there are 10 almonds and 20 walnuts.

Which of the two packets does Maria have to choose, in order to have a greater probability of eating an almond?

Answer: \_\_\_\_\_ (2)

**(Total 5 Marks)**

14. A shop offers a 20% discount on all of its products.

(a) George bought a bicycle and paid €144.

Find the original price of the bicycle.

Answer: \_\_\_\_\_ (3)

(b) An electric scooter costs €160 originally.

How much will it cost after the discount?

Answer: \_\_\_\_\_ (3)

**(Total 6 Marks)**

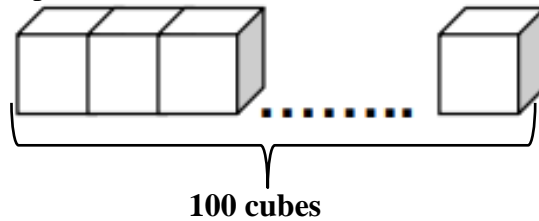
15. An examination paper consists of 30 multiple choice questions and 20 pairing questions. For every correct multiple choice question, 2 points are rewarded and for every correct pairing question, 5 marks are rewarded. Jason correctly answered 70% of the multiple choice questions and 8 pairing questions.

Find Jason's total score.

Answer: \_\_\_\_\_ (4)

**(Total 4 Marks)**

16. The solid shown below is made of 100 identical cubes that are placed next to each other. Each cube is made of squares of an area of  $4 \text{ cm}^2$  each. The external area of the solid will be covered with paint.



What is the total area of the surface of the solid that will be covered with paint?

Answer: \_\_\_\_\_ (4)

**(Total 4 Marks)**

17. An aeroplane travels at a constant speed. If it covers 1680 kilometres in 2 hours, how much distance will it cover in 3 hours?

Answer: \_\_\_\_\_ (3)  
**(Total 3 marks)**

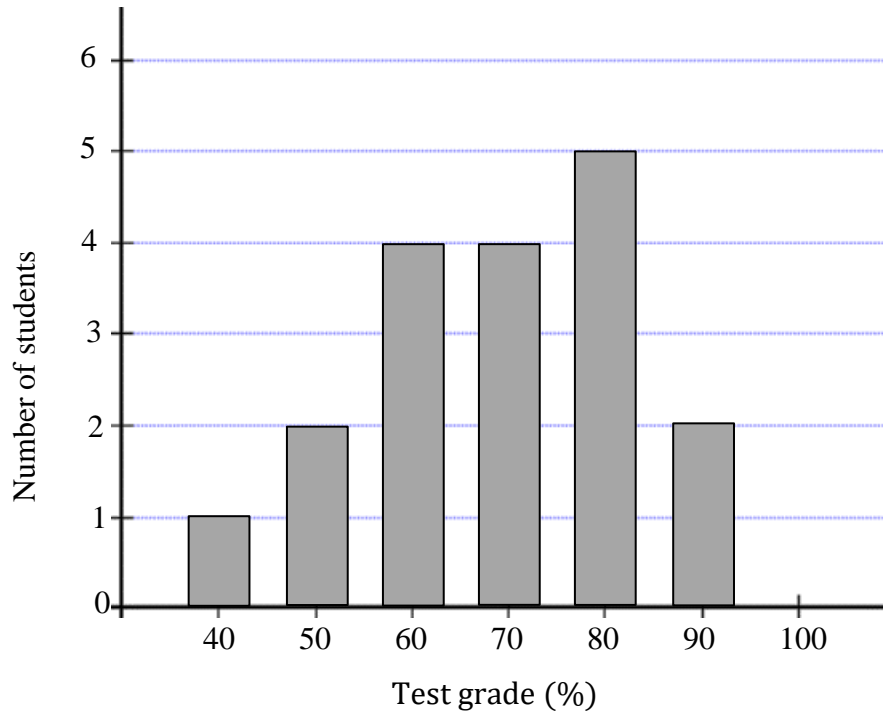
18. Costas, Marina and Paul have €210 in total. Costas has twice as much money as Marina has and Marina has twice as much money as Paul has.

Find how much money each one of them has.

Costas: \_\_\_\_\_, Marina: \_\_\_\_\_, Paul: \_\_\_\_\_ (5)

**(Total 5 Marks)**

19. The following incomplete bar chart shows the grades of the students of a class in a maths test.



2 of the students in the class received a grade of 100% each.

(a) Complete the bar chart using the above information.

(1)

(b) What was the grade that most of the students of the class received?

Answer: \_\_\_\_\_ (1)

(c) Find the average grade of the test.

Answer: \_\_\_\_\_ (4)

**(Total 6 Marks)**

20. A greengrocer bought 130 kilograms of onions at 14 cents per kilogram. He sold 75 kilograms at 25 cents per kilogram. He threw 10 kilograms of onions away, because they went bad. He sold the remaining onions at 30 cents per kilogram.

How many euros did he earn in total?

Answer: \_\_\_\_\_ (6)

**(Total 6 Marks)**

END