

Candidate Number: _____

Surname: _____

Name: _____

Father's name: _____



THE G C SCHOOL OF CAREERS

ENTRANCE EXAMINATION

SCHOOL YEAR 2022-2023

MATHEMATICS

This examination paper consists of 17 pages, including this page.

THE G C SCHOOL OF CAREERS



ENTRANCE EXAMINATION

SCHOOL YEAR 2022-2023

GOOD LUCK

Time: 1 hour and 30 minutes

MATHEMATICS

- This paper consists of **25 questions**.
- Answer **ALL** the questions in the space provided.
- Show **all your workings**.
- The use of a calculator is **not allowed**.
- Write your answers **clearly**.

1. Calculate the following and simplify your answers:

$$\text{a) } \frac{2}{3} + \frac{2}{3} + \frac{2}{3} \times 6 =$$

(2)

Answer: a) _____

$$\text{b) } 65 \div \frac{1}{5} - 3^3 \times \frac{1}{9} + 2^3 =$$

(3)

Answer: b) _____

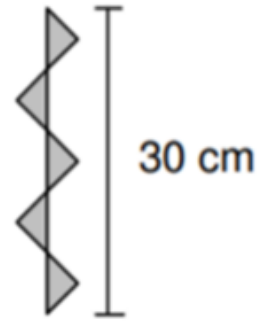
$$\text{c) } \left(2\frac{1}{3} - \frac{5}{7}\right) \div \left(3\frac{1}{2} \times 2 + 10\right) =$$

(4)

Answer: c) _____

2. All the triangles in the diagram are equilateral.

Find the perimeter of the diagram.



(2)

Answer: _____

3. If you know that,

(2)

$$\begin{aligned} \square &= \bigcirc + \bigcirc \\ \bigcirc &= \star \div \star \\ \triangle &= \square + \square + \square \end{aligned}$$

find the value of the triangle.

Answer: _____

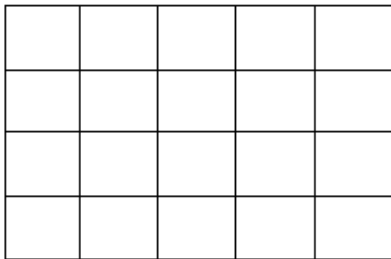
4. Nikos wants to buy 2 dozen pencils and a pen, the total cost of which is €19.60, but he does not have the money. He decided to buy only 8 pencils and paid €4.80. Find how much the pen costs.

(4)

Answer: _____

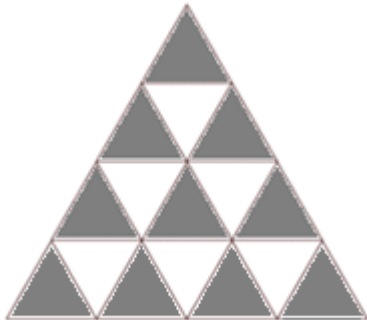
-
5. a) Shade 45% of the shape.

(2)



- b) Find the percentage of the shaded area.

(2)



Answer: _____

6. We asked 110 children what pet they have at home. The results were:

- 34 children have a dog,
- 28 children have a cat,
- 36 children do not have a pet, and
- the remaining 25 children only have a fish and none of the other pets.

Find how many children only have a dog as a pet and how many only have a cat.

(4)

Answer: _____

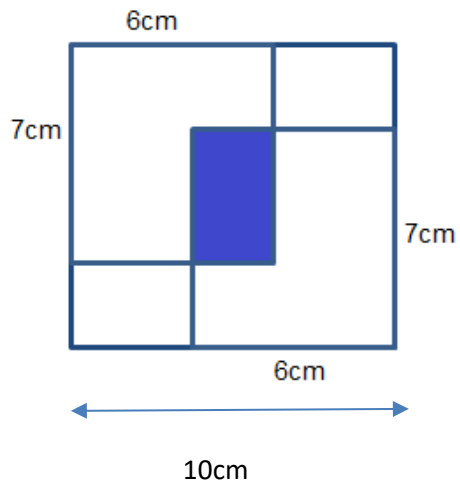
7. A farmer has more than 50 and less than 70 sheep. If he groups the sheep by 2, by 3, by 4, by 5 or by 6, there is always a remainder of 1. Find how many sheep the farmer has.

(3)

Answer: _____

8. Find the area of the shaded region if the side of the square is 10cm.

(4)



Answer: _____

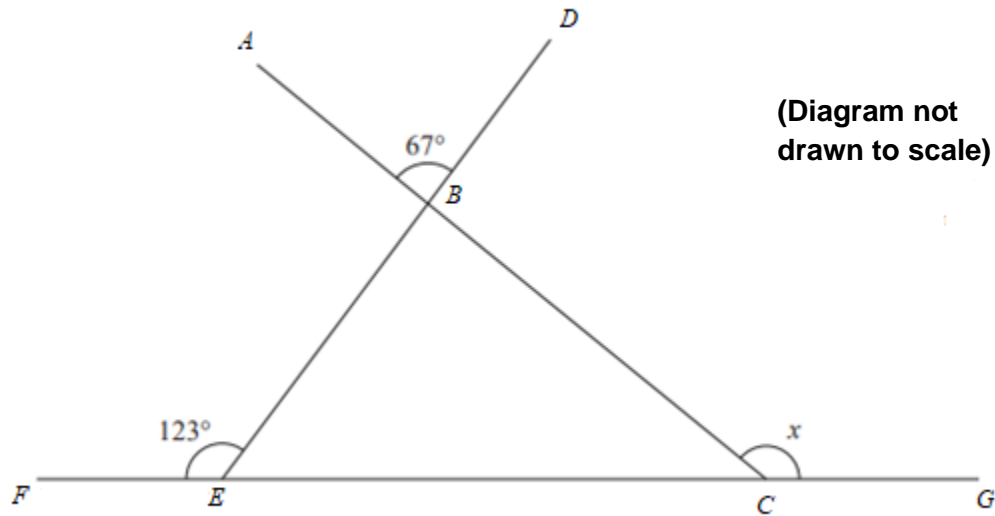
9. Find the three-digit number closest to 1000 that can be divided by 2, 3 and 6, and its sum of digits is 18.

(3)

Answer: _____

10. In the diagram below, angle $ABD = 67^\circ$ and angle $BEF = 123^\circ$.
Find angle x , showing all your steps.

(4)



Answer: $x =$ _____

11. Attendance at the gym last week was as follows: 82 people on Monday; 86 on Tuesday; on Wednesday $\frac{2}{3}$ of those from Monday and Tuesday combined; on Thursday, eighteen fewer than those on Tuesday; and on Friday, forty more than those on Wednesday. The gym is closed during the weekend.

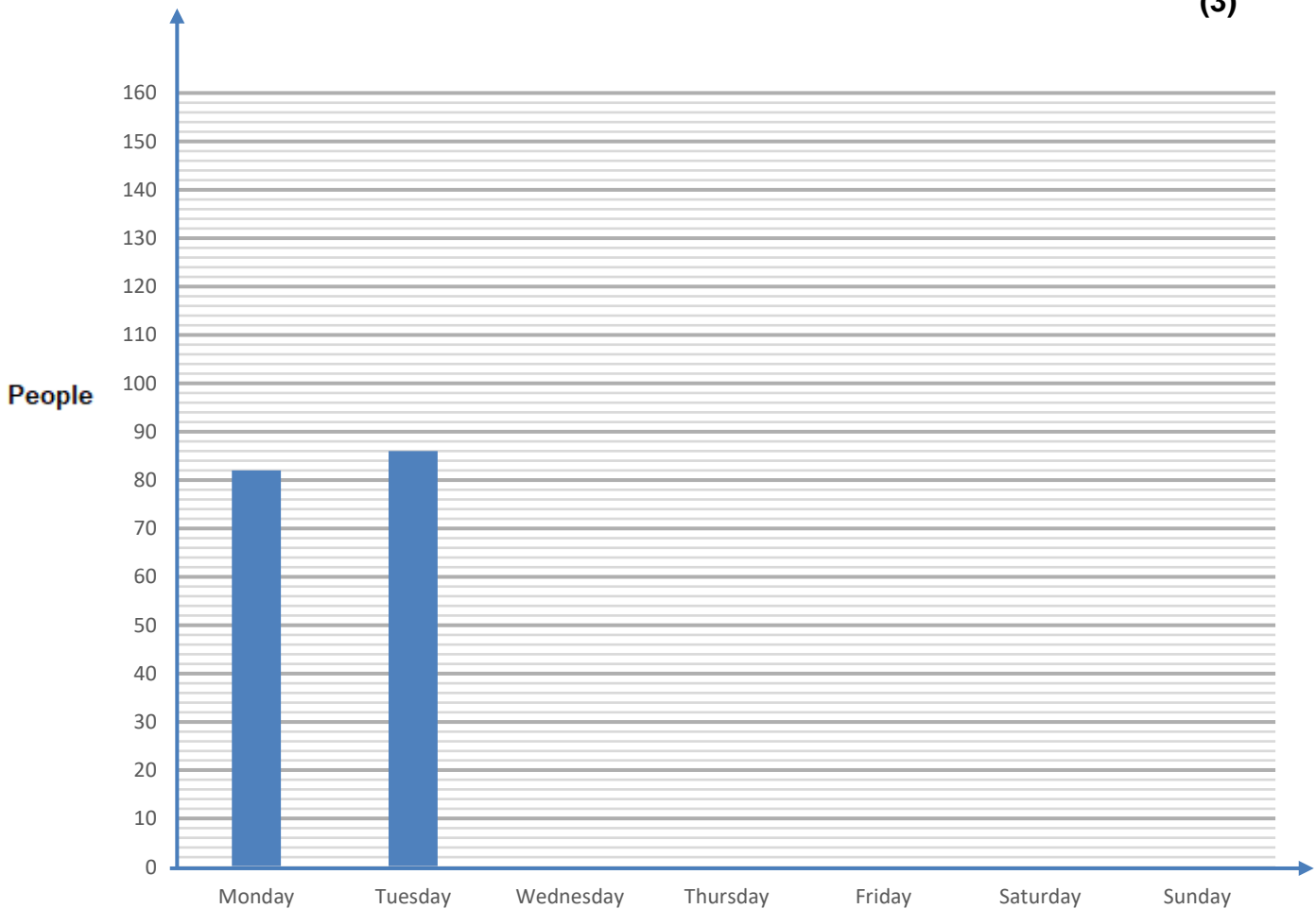
a) Complete the table below.

(3)

Day	Monday	Tuesday	Wednesday	Thursday	Friday	Saturday	Sunday
People	82	86					

b) Complete the graph based on your table.

(3)



Find:

c) how many people visited the gym last week,

(1)

Answer: _____

d) the percentage of people who went to the gym on Monday, Tuesday and Friday combined.

(3)

Answer: _____

12. Numbers α and β verify the following equations.

Find numbers α and β .

(3)

- $2 \times \alpha + 7 = 15$

- $\frac{\alpha+2}{3} = \beta$

Answer: $\alpha =$ _____, $\beta =$ _____

13. My grandmother's bakery bakes cheese pies every 15 minutes, breads every 12 minutes, and olive pies every 30 minutes. The bakery works from 6:30 in the morning until 1:00 in the afternoon. Find the time at which all three items are baked together.

(3)

Answer: _____

14. A Mathematics competition was attended by 28 students. The students who scored lower than Stefanos were twice as many as those who scored higher than him. What was Stefanos's position?

(3)

Answer: _____

15. In a Mathematics competition, some children got the following marks out of 20:

9, 14, 17, 12, 18, 20, 9, 16, χ

If the average mark is 15, find the value of χ .

(4)

Answer: _____

16. Andreas bought apples for 65 cents per kilo and paid €78. Then, he put the apples in boxes of 6 kilos each. Find how much he has to sell each box if he wants to make a profit of €65.

(4)

Answer: _____

17. An airline charges its passengers €10 for each additional kilo above what its luggage regulations allow. Stelios paid a fine of €60 for his luggage that weighed 42 kilos.

a) Find the allowed luggage weight in kilos.

(2)

Answer: _____

b) Thanasis's luggage weighs 45 kilos. How much will he pay?

(2)

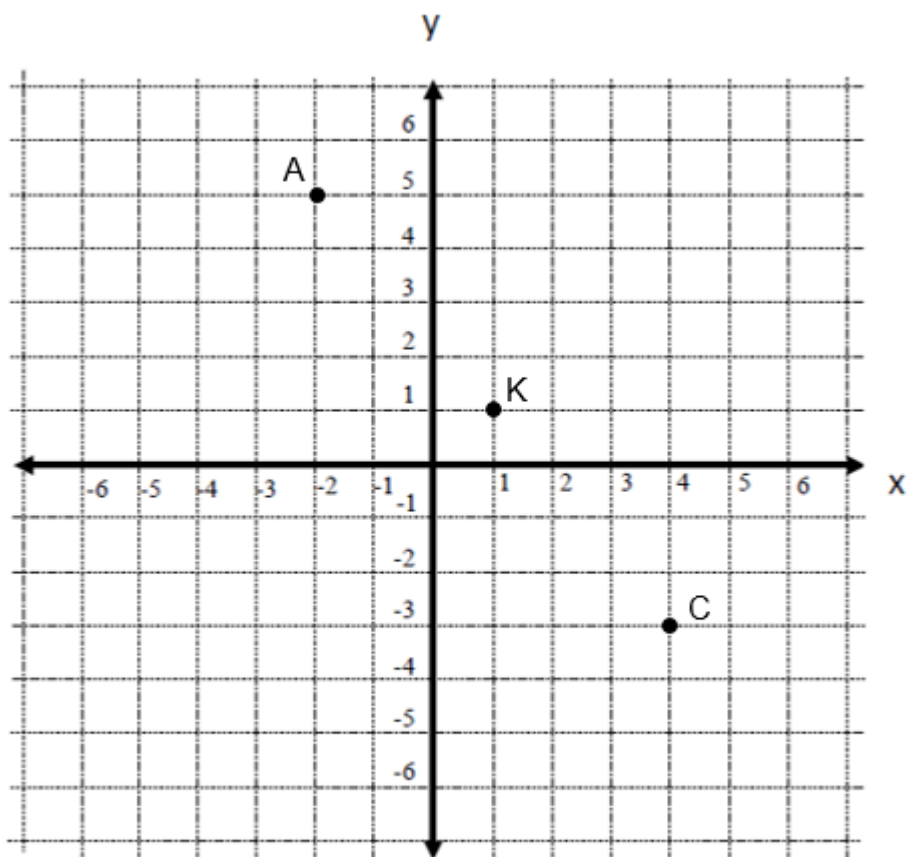
Answer: _____

18. Anna, Jenny, Eleni, Michalis, and Nikos are sitting next to each other in a straight line. Anna is not next to Jenny. Eleni is sitting next to Michalis. Find who cannot be the one in the middle spot.

(3)

Answer: _____

19. In the diagram below, the point K is the centre of a rectangle with coordinates (1,1), while A(-2,5) and C(4,-3) are two of the vertices of the rectangle. Find the coordinates of the other vertices and form the rectangle in the diagram. (3)



Answer: (____, ____)
(____, ____)

20. A square with side 8cm has area equal to 40% of the area of a rectangle. If the length of the rectangle is 32cm, find the perimeter of the rectangle.

(5)

Answer: _____

21. John's mother is thirty years old. Her three children are aged six, three and one. Ten years later, the total age of John's mother and father is twice the total age of all three children at that time. Find how old John's father is today.

(4)

Answer: _____

22. Three friends, Costas, Nikos and Yiannis have €40 between them. Costas has as much money as Nikos and Yiannis have together. Nikos has €10 more than Yiannis. Find how much money each person has.

(4)

Answer: Costas: _____, Nikos: _____, Yiannis: _____

23. Christina has €21, Niki has €85, and Anna has as much more money than Christina as she has less than Niki. Find how much Anna has.

(3)

Answer: _____

24. From a barrel full of wine, we emptied $\frac{3}{7}$ of the contents into bottles. Then, we removed another 64 kilos with 96 kilos remaining in the barrel. Find how many kilos of wine the barrel initially contained.

(4)

Answer: _____

25. Marina bought 20 milk cartons and 50 juice boxes, and she paid a total of €120. If 8 milk cartons cost as much as 10 juice boxes, find how much 1 milk carton and how much 1 juice box cost.

(4)

Answer: Milk: _____, Juice: _____

END