

Number _____

Surname _____

Name _____

Father's name _____



THE G C SCHOOL OF CAREERS

ENTRANCE EXAMINATION

SCHOOL YEAR 2019-2020

MATHEMATICS

(This examination paper consists of 18 pages, including this page).

THE G C SCHOOL OF CAREERS



ENTRANCE EXAMINATION

SCHOOL YEAR 2019-2020

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. Solve the following.

a) $\frac{2}{9} + \frac{1}{2} \div \frac{3}{2} =$

(2)

Answer: _____

b) $\frac{2\frac{3}{5} - \frac{1}{3} + 1^{200}}{\frac{1}{5}} =$

(4)

Answer: _____

c) $7 \times \frac{1}{2} + 0.9 + \frac{3}{5} - 25\%$

(3)

Answer: _____

2. You are given that

$$10101 \times 4444 = 44888844.$$

Without performing any calculations, find the following:

(2)

a) $10101 \times 1111 =$ _____

b) $20202 \times 2222 =$ _____

3. Specify which of the following are True or False.

(5)

a) $6 \div \frac{2}{7} = \frac{3}{7}$ _____

b) If a number is divided by 5,
there could be a remainder of 4. _____

c) The number 0.001 is ten times smaller
than the number 0.01. _____

d) $\frac{3^2 \times 2 \times 1^{20}}{4} = 90$ _____

e) The number in the middle between -6 and 3 is the number -1.5. _____

4. Fill in the boxes with the missing numbers.

(5)

a) $\frac{2}{3} \times \square = \frac{2}{5}$ b) $\frac{5}{6} \div \square = 6$ c) $\frac{10}{9} \times \square = \frac{2}{3}$

d) $\square \div \frac{4}{7} = 7$ e) $\square \times 5\frac{1}{3} = 2^2$

5. Write down the three-digit number whose hundreds figure is double the units figure and the tens figure is a common multiple of 2 and 3.

(4)

Answer: _____

6. In a bucket, there are 30 litres of paint. 25% of the paint is red and 30% of the paint is yellow. We add 5 more litres of yellow paint to the bucket. Find the percentage of yellow paint, which is now in the bucket.

(4)

Answer: _____

-
7. The cost of a single projection ticket in a cinema with 150 seats is €450. Find how much the cinema will gain in euros if 40% of the seats stay empty and each spectator pays €8.

(3)

Answer: _____

8. Three tennis matches took place today. The first match lasted for 1 hour and 42 minutes, the second match for 2 hours and 11 minutes and the third match for 2 hours and 27 minutes. If the first match started at 4:30 pm and there were 10-minute breaks between matches, calculate what time the third match ended.

(3)



Answer: _____

9. I have a school assignment in which I need to place 225 pictures in a notebook. Each page can hold up to 8 pictures. Find the maximum number of pictures I should put on each page in order for all the pages to have the same number of pictures and to also use up the least number of pages.

(2)



Answer: _____

10. The width of a rectangular picture is 8cm and its perimeter is 28cm. We asked a photographer to enlarge it by a factor of $\frac{5}{2}$. Find the ratio of the areas of the two pictures.

(5)

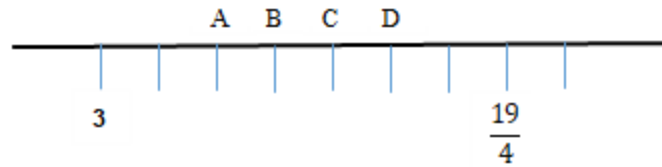
Answer: _____

11. A traveller goes from City A to City B. He covers 60% of the distance by bus and $\frac{1}{2}$ of the rest of the journey by taxi. If he had 13km left, find the distance between city A and city B.

(4)

Answer: _____

12. Using the number line below



a) find the letter representing number 4.

(2)

Answer: _____

b) Write the numbers indicating the letters above, giving your answers as a decimal.

(3)

Answer: _____

13. Using the digit 2 and any mathematical symbols you want, write down an expression that gives the number 23 as a result.

(2)

2

Answer: _____

14. Maria bought 2 pens and 3 pencils from a local bookstore and she paid a total of €4.55. Given that a pencil is worth half the price of a pen, find the price for a single pen and a pencil.

(4)

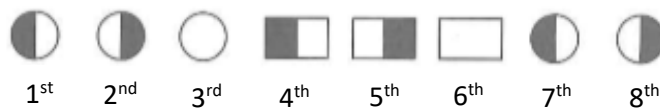
Answer: Pencil: _____



Pen : _____



15. Given the pattern below, find the shape in the 47th position.



(2)

Answer: _____

16. A telephone company has two package deals:

Package 1: Monthly subscription of €30 which includes 210 free minutes with an extra charge of €0.04 for each additional minute.



Package 2: Monthly subscription of €25 which includes 120 free minutes with an extra charge of €0.08 for each additional minute

a) If George talks for 3 hours per month, which package should he choose?

(3)

Answer: _____

b) Anna chose the first package and paid €33.60. Work out the total number of **hours** she talked on the phone in the previous month

(3)

Answer: _____

17. I am thinking of a two-digit number in which the sum of its digits is 10. If I subtract 54 from this number, the result will be a number which has the same digits as the initial one. Find this number.

(3)

Answer: _____

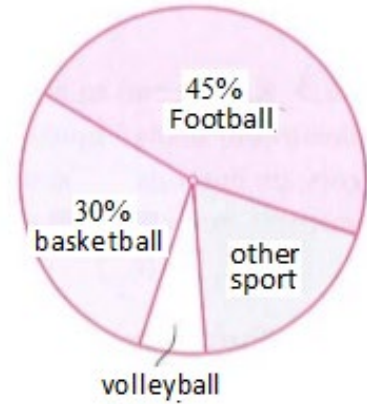
18. A 36-year-old mother has three children aged 12, 10 and 8 years old. In how many years will the mother's age be the same as the sum of her children's ages?

(4)



Answer: _____

19. The pie chart below illustrates the sport preferences of 400 students who answered a questionnaire. Given that the number of students who answered "other sport" is three times the number of students who answered "volleyball",



a) find the number of students who answered "other sport".

(4)

Answer: _____

b) What is the probability that a randomly selected student will prefer football?

(1)

Answer: _____

20. Work out the missing angles a, g and b on the diagram below.

(4)

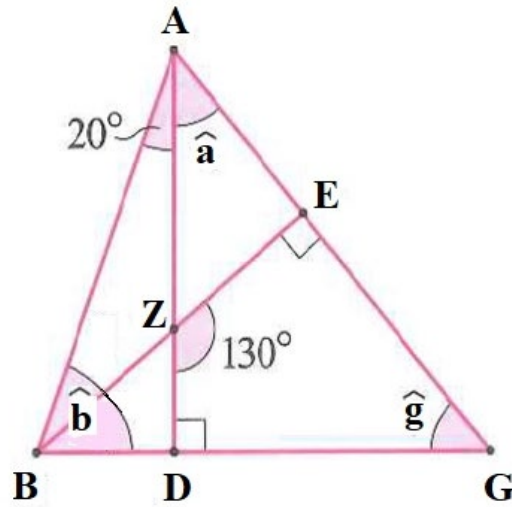


Diagram Not accurately drawn.

Answer: Angle a: _____

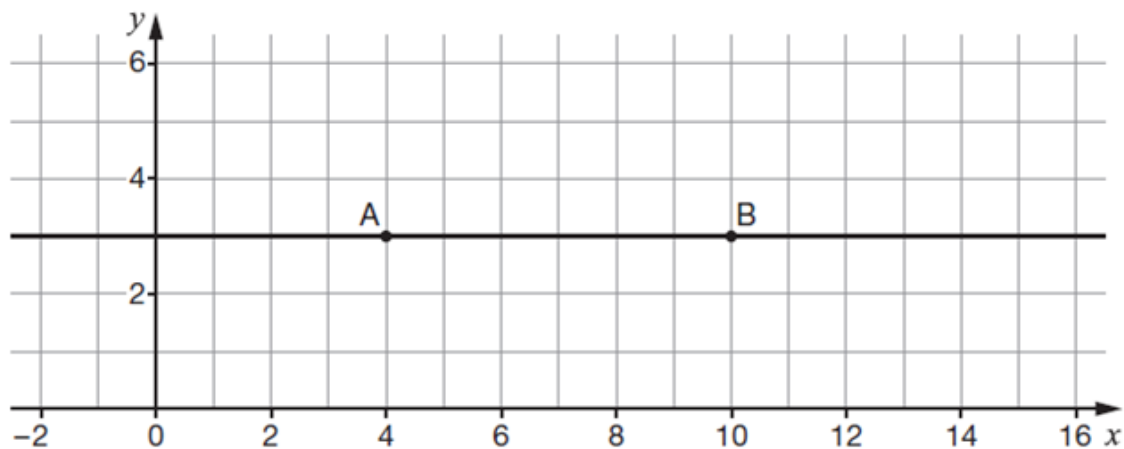
Angle g: _____

Angle b: _____

21. Point A has coordinates (4, 3) and point B (10, 3). Both lie on a horizontal line.

a) Another point P lies on the same horizontal line. Point P is twice as far from A as it is from B. Find the coordinates of point P.

(2)



Answer: P(,)

b) Point C has coordinates (-1, 1). Locate point C on the set of axes above and find the area of triangle ABC.

(2)

Answer: Area: _____

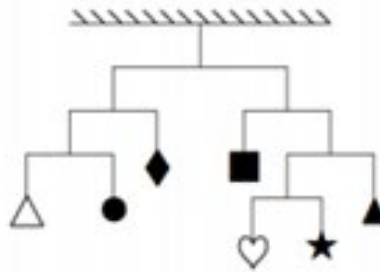
22. Sofia has a set of two-sided numbered cards. The total of numbers on each card is 10. Sofia places five cards on a table in such a way so that the total of all numbers facing up and down is the same. Work out the missing number on the 5th card below.

(3)



Answer: _____

23. The diagram below shows a hanging scale, which rests in equilibrium. If all the shapes have a total weight of 112 gr, find the weight, in grams, of one star.



(3)

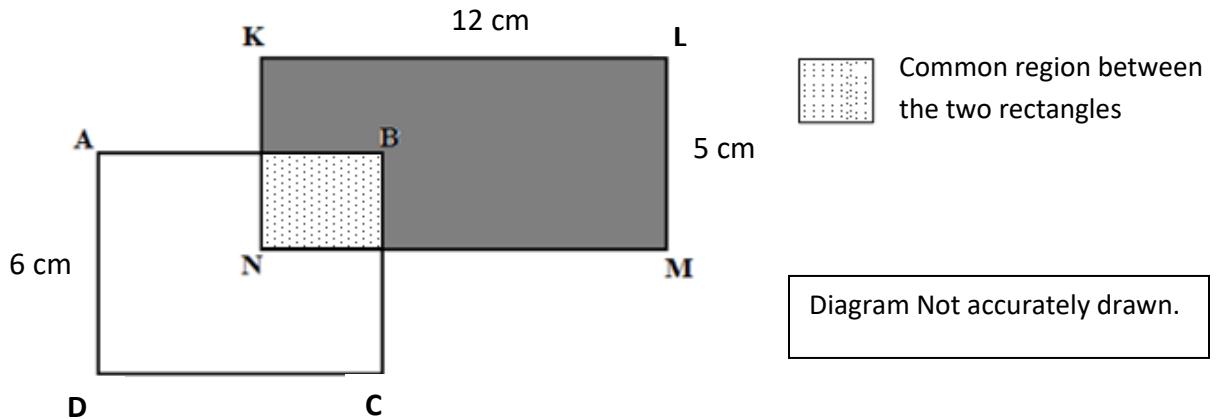
Answer: _____

24. In the figure below you have two rectangular parallelograms.

$KL = 12\text{ cm}$, $AD = 6\text{ cm}$ και $LM = 5\text{ cm}$. The perimeter of $ABCD$ is 6 cm smaller than the perimeter of $KLMN$.

(The two rectangles have a common region as in the shape below)

If you know that the white part has an area of 32 cm^2 , find the area of the black shaded part.



(5)

Answer: _____

25. Annie, Beatrice and Catherine each wish to purchase a mobile phone of the same value. In order for Annie to buy the phone she needs an extra €40, Beatrice needs an extra €50 and Catherine needs an extra €20. If all three girls add up their money, they can buy two mobile phones and still have €30 left.

Work out the amount of money that each one of these girls have.

(4)

Answer: Annie: _____

Beatrice: _____

Catherine: _____

END