

Number \_\_\_\_\_  
Surname \_\_\_\_\_  
Name \_\_\_\_\_  
Father's name \_\_\_\_\_



# THE G C SCHOOL OF CAREERS

## ENTRANCE EXAMINATION

SCHOOL YEAR 2020-2021

## MATHEMATICS

(This examination paper consists of 15 pages, including this page).

# THE G C SCHOOL OF CAREERS



## ENTRANCE EXAMINATION

SCHOOL YEAR 2020-2021

GOOD LUCK

Time: 1 hour

### MATHEMATICS

- This paper consists of **17 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**.
- **Total Mark for this paper is 70**

1. Calculate the following:

a)  $\frac{2015}{3} + \frac{1}{3} - \left(\frac{1}{2} - \frac{2}{5}\right) + 0.1 =$  **(3)**

Answer: \_\_\_\_\_

b)  $\frac{2^3 + 3^2 + 1^{10} - 4 \times 2\frac{1}{2}}{\left(\frac{1}{3}\right)^2} =$  **(4)**

Answer: \_\_\_\_\_

c)  $\frac{100}{101} + \frac{100}{99} + \frac{5}{505} - \frac{10}{990} =$  **(2)**

Answer: \_\_\_\_\_

\_\_\_\_\_

2. Find all integer numbers suitable for  $x$  such that:

$$\frac{11}{6} < \frac{x}{9} < \frac{9}{4}$$

(3)

Answer: \_\_\_\_\_

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3. Taxis to town A charge €2.40 for the first kilometre and €0.4 for each additional kilometre. Mr. Nikos paid a total of €10 for his taxi ride, which included the amount of €2 as a luggage charge. Find out how many kilometres his taxi journey was.



(3)

Answer: \_\_\_\_\_

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4. A shopkeeper bought some balloons at the price of €1.5 for a dozen, but sells them for €0.20 each. Find how much profit he will gain in a day, if he sells 20 dozen balloons.

(3)



Answer: \_\_\_\_\_

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5. In a bookshop, four exercise books cost the same as 25 glue sticks. Five glue sticks cost €1.60. Find how many dozens of exercise books you can buy with €48.

(3)

Answer: \_\_\_\_\_

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6. An airplane has 108 seats for passengers. The number of passengers about to board the plane to Thessaloniki is double the number of the seats that will be left empty. Find the number of passengers travelling to Thessaloniki.

**(3)**

Answer: \_\_\_\_\_

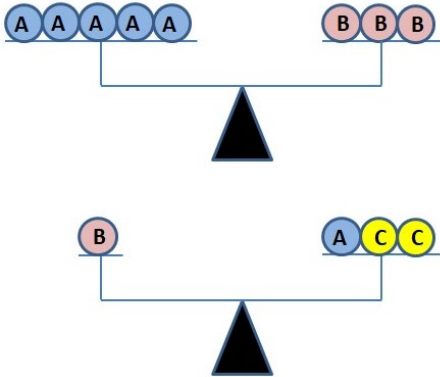
- 
7. There are 29 students in the sixth grade of a school. 12 of them have got one sister, and 18 have got one brother.  
Dina, Alex and Katerina are the only ones who haven't got a brother or a sister.  
Find the number of students in the class, who have got one brother and one sister.

**(3)**

Answer: \_\_\_\_\_

8. The diagram below shows two scales in equilibrium.  
Find how many C balls have the same weight as one A ball.

(3)



Answer: \_\_\_\_\_

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9. There are 12 white and 20 black balls in a box. How many balls should be added to the box in order for the black balls to be 70% of the total number of balls?

(4)

Answer: \_\_\_\_\_

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**10.** There are some children at the camp. To prepare breakfast for 8 children, 2 litres of milk are needed and the cost for 4 litres of milk is €9. If the milk needed every morning for all the children at the camp costs €135, find:

**a)** how many litres of milk are needed every morning.

**(2)**

Answer: \_\_\_\_\_

**b)** how many children there are at the camp.

**(2)**

Answer: \_\_\_\_\_



c) There are 10 more boys at the camp than girls. Find how many boys and how many girls there are at the camp.

(3)



Answer: Boys: \_\_\_\_\_

Girls: \_\_\_\_\_

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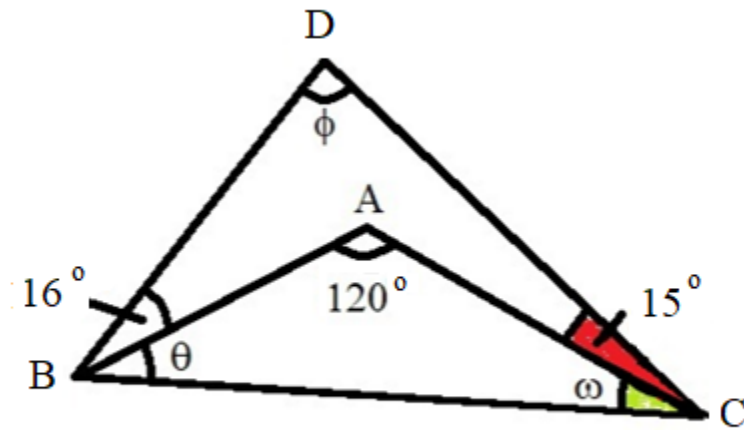
11. When a container is 30% empty, it has 20 litres of water more than when it is 30% full. Find how many litres of water the container can hold when it is full.

(3)

Answer: \_\_\_\_\_

12. a) Given that angle  $\theta$  is larger than angle  $\omega$  by  $16^\circ$ , find the size of angle  $\phi$ .

(5)



(Diagram not accurately drawn)

Answer:  $\phi =$  \_\_\_\_\_

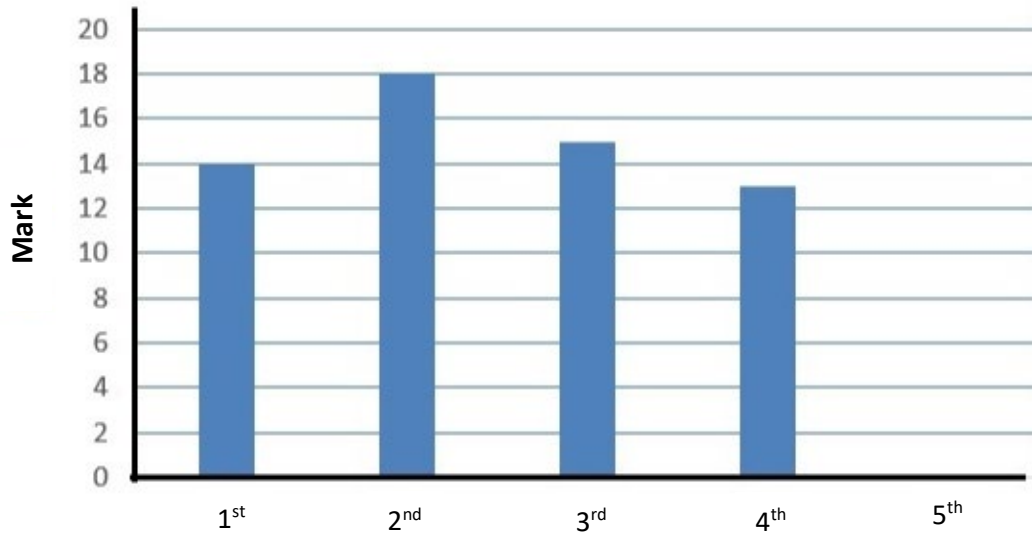
b) Write the type of triangle BCD.

Answer: \_\_\_\_\_

\_\_\_\_\_

13. The bar chart displays the marks of one student in four out of five Mathematics tests he has taken this Term. If the average mark of all five tests is 16, find the mark he got in the 5<sup>th</sup> test and complete the bar chart accordingly.

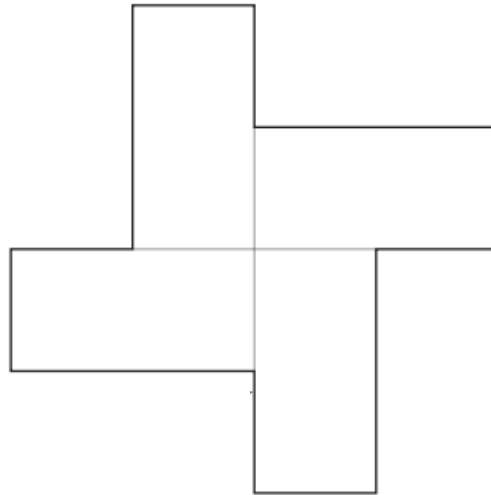
(4)



Answer: \_\_\_\_\_

14. This shape is made of four equal rectangles. Given that the length of each rectangle is twice its width, and its area is  $98\text{cm}^2$ , find the perimeter of the shape.

(4)



(Diagram not accurately drawn)

Answer: \_\_\_\_\_

\_\_\_\_\_

15. Andreas has 8 chocolate bars, Vasilis has 6 bars, George has 10 bars and Dimitris doesn't have any chocolate bars. The four friends decide to share the chocolate bars equally amongst them, and Dimitris will contribute €15. Find out how the €15 will be distributed to Andreas, Vasilis and George.  
*(all chocolate bars are the same)*

(4)



Answer: Andreas \_\_\_\_\_

Vasilis \_\_\_\_\_

George \_\_\_\_\_

**16.** Costas sets off from town A with a full petrol tank to go to town B that is 600km away. After travelling a distance of 450km, he notices that he has 20% of the petrol he had when he started his journey. Is there enough petrol for him to reach his destination, or does he need to stop and refill?

**(4)**



Answer: \_\_\_\_\_

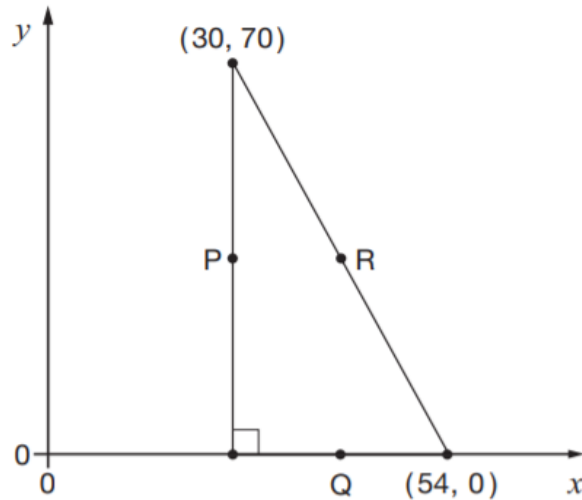
\_\_\_\_\_

17. The diagram shows a right-angle triangle.

P, Q and R are the midpoints of the sides of the triangle.

Point R is right above point Q and it lies on the same horizontal line as point P.

(Diagram not accurately drawn)



a) Work out the coordinates of P, Q and R.

(3)

Answer: P \_\_\_\_\_

Q \_\_\_\_\_

R \_\_\_\_\_

b) Find the area of triangle PQR.

(2)

Answer: \_\_\_\_\_

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**END**