

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



# THE G C SCHOOL OF CAREERS

## ENTRANCE EXAMINATION

SCHOOL YEAR 2018-2019

## MATHEMATICS

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

# THE G C SCHOOL OF CAREERS



## ENTRANCE EXAMINATION

SCHOOL YEAR 2018-2019

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 equations and fill in the number that is missing.  
Give your answers in the simplest form.

a)  $\left(\frac{3}{8} \times 32\%\right) \div \frac{8}{175} =$  **(3)**

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

b)  $\frac{2006}{2007} + \frac{2006}{2009} + \frac{1}{2007} + \frac{3}{2009} =$  **(2)**

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

c)  $\left(1 + \frac{1}{2}\right) \times \left(1 + \frac{1}{3}\right) \times \left(1 + \frac{1}{4}\right) \times \dots \times \left(1 + \frac{1}{2009}\right) =$  **(2)**

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

d)  $(520 \div \square) \times 16 = 320$  **(3)**

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

2. The symbol  $\diamond$  is translated as  $a \diamond b = a \cdot b^2 - a^2 \cdot b$   
Find the result of  $2 \diamond 7$ .

(3)

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

- 
3. George has used 515 points of power on his electricity bill. The first 185 points cost €0.850 and the rest €0.515 each. He must pay 5 % tax on the total amount. Help George complete his electricity bill below and find how much he will pay in total.

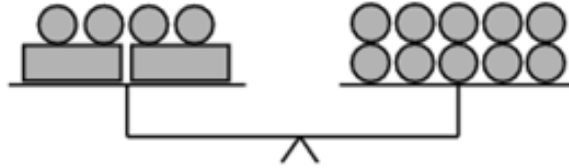
(5)

185 points at €0.850 each	€ .....
..... points at €0.515 each	€ .....
<b>Total</b>	€ _____
5 % tax on the total amount	€ .....
<b>Total amount that he has to pay</b>	€ _____

4. The following balance is in equilibrium.

Find what the sign  is equal to.

(2)



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

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5. Christos chose two numbers from a box.

Maria says:

“When you write the two numbers that Christos chose in one decimal point, then the two numbers are **equal**.”

Christina says:

“When you write the two numbers that Christos chose, after you round them up to the nearest whole number, then the two numbers are **not equal**.”

Both girls are correct.

Write down the two numbers that Christos chose.

*123.37*

*123.43*

*123.47*

*123.53*

*123.57*

*123.63*

*123.67*

(2)

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

6. When you multiply the letters horizontally and vertically you get the results given in the table. Find the product of  $xz = ?$

(3)

x	y	6
w	z	50
12	25	

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

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7. Five children want to equally divide all the candies that there are in a box. You know that the number of candies in the box is a three- digit number. You also know that:

- the tens digit is greater than the units digit by 3.
- the hundreds digit is two times the tens digit.

Find this number.

(3)

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

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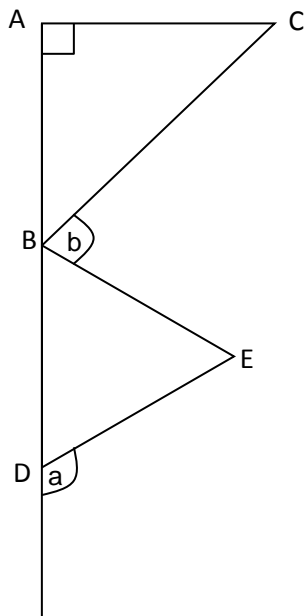
8. Find which number you need to subtract from both the numerator and the denominator of the fraction  $\frac{13}{16}$ , in order to have a fraction equivalent to  $\frac{3}{4}$ .

(3)

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

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9. In the following shape ABD is a straight line. The triangle ABC is isosceles and the triangle BDE is equilateral. Find the missing angles.



(4)

Answer: Angle a: \_\_\_\_\_ Angle b: \_\_\_\_\_

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**10.** Costas, Maria, Helen, Nikos, Thanasis and Anna, each throw the dice. They all come up with a different number (1 to 6). Costas' number is twice Maria's number. Costas' number is three times larger than Helen's number. Nikos' number is four times larger than Thanasis' number. Find the number that Anna came up with when she threw the dice.

**(3)**

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

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**11.** 500 children went to a scout camp. 40 % of those children were girls. After some days, 36 boys and 64 girls also joined the scout camp. Find the new percentage of the girls that are attending the scout camp now.

**(4)**

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



**12.** Danae printed 100 pages with her printer. All of the pages were numbered 1, 2, 3, 4, 5, ....., 100. Find the total number of digits printed to number all the pages.

**(3)**

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

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**13.** In part A of a Maths test Marcos got 80% of the 10 multiple choice questions right. In part B, he got 70% of the 30 short-answer questions right. What percentage of the questions in the test did he answer correctly?

**(4)**

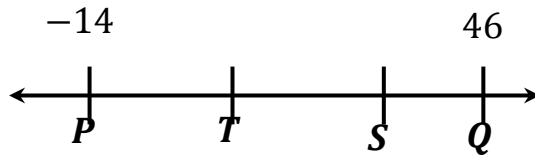
Answer: \_\_\_\_\_

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14. On the line below, letter S is located at  $\frac{3}{4}$  of the distance between P and Q.

Letter T is located at  $\frac{1}{3}$  of the distance P and Q.

Find:



a) the distance between T and S, (3)

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

b) which number must be written above letter S. (2)

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

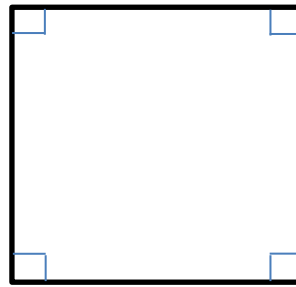
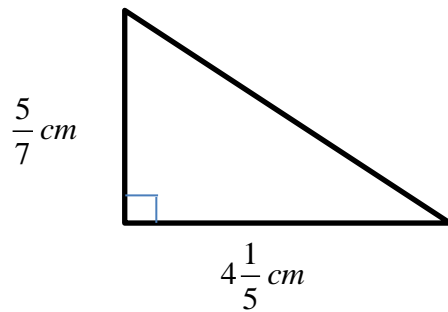
15. In the following addition the letters x and y are different digits.

$$\begin{array}{r}
 3 \ x \ y \\
 y \ x \ 3 \ + \\
 \hline
 1 \ x \ 1 \ x
 \end{array}
 \quad (3)$$

Find the answer for y-x.

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

16. In the diagram below the area of the square is 24 times the area of the triangle.



Find the perimeter of the square.

(4)

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

- 
17. Antonis and Katerina are cousins and today they both have their birthdays. Antonis is 6 years older than Katerina. In 4 years' time Antonis will be twice as old as Katerina. Find how old Antonis and Katerina are now.

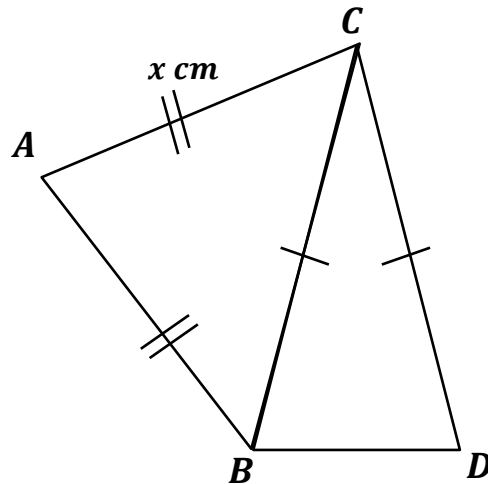
(3)

Answer: Antonis: \_\_\_\_\_ Katerina: \_\_\_\_\_

18. In the diagram, triangle ABC is isosceles with  $AB = AC = x$  cm and triangle BCD is isosceles with  $CB = CD$ . The side CD is 4 cm larger than AC. The perimeter of triangle ABC is 22 cm and the perimeter of BCD is 22 cm. Find:

a) the side AC.

(3)



(Diagram not accurately drawn)

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

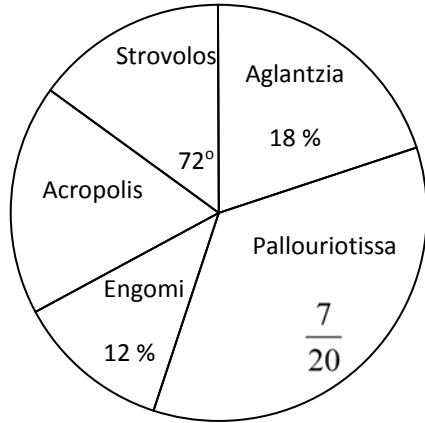
b) the perimeter of ACDB.

(2)

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

\_\_\_\_\_

19. The pie chart below shows the consumption of bottled water by school children in different districts of Nicosia for one day.



(Diagram not accurately drawn)

a) In Pallouriotissa, there were 180 more bottles consumed than in Acropolis. How many bottles were consumed overall on that day?

(4)

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

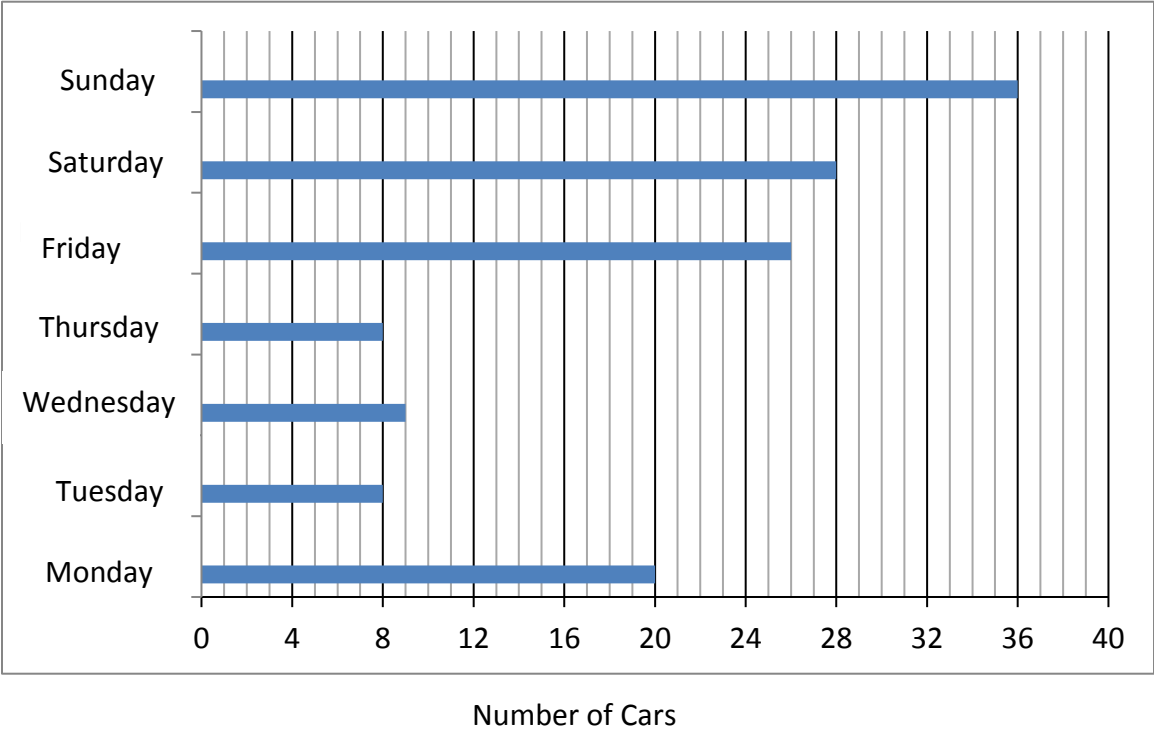
b) How many bottles were consumed in Strovolos?

(2)

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

\_\_\_\_\_

20. The bar chart below shows the number of cars washed at a Car Wash during a specific week.



a) Find the number of cars washed during the whole week.

(2)

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

b) Find the percentage of cars washed on Friday and Saturday.

(2)

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

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**21.** A grandfather gave some of the money he had saved to his two grandchildren.

The eldest child got  $\frac{3}{5}$  of the money saved and the youngest one 60% of the money that the eldest child got. The grandfather was left with €45.

**a)** How much money in total had the grandfather saved?

**(3)**

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

**b)** How much did each child get?

**(2)**

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

\_\_\_\_\_

**22.** Three children have a total of 30 balls. If Vasilis gives 5 balls to Giannis, Giannis gives 4 balls to Anna and Anna gives 2 balls to Vasilis, then all three children will have the same number of balls. Find out how many balls Anna originally had in her possession.

**(4)**

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

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**23.** Antonia has €56 and Despina has €44. The two girls decided that Antonia will spend €7 every week and Despina will spend €4 every week.

**a)** Find in how many weeks they will have the same amount of money.

**(2)**

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

**b)** Who will run out of money first?

**(2)**

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



**24.** The pupils of Form 1 have collected an amount of money to buy some fabric for their Halloween costumes. If they buy 25 metres of fabric, they will be 12 euros short of money. If they buy 23 metres of fabric they will save 36 euros. Find the amount of money collected by the pupils of Form 1.

**(4)**

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

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**25.** Maria and George buy a basket of apples and pears. At the beginning they have 25 fruit in total. On the way home, Maria eats 1 apple and 3 pears, while George eats 3 apples and 2 pears. When they get home, Maria notices that the number of apples left is the same as the number of pears left. Find how many pears there were in the basket at the beginning.

**(4)**

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

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**END**