

EXTRAORDINARY CALL

THEORETICAL PART: 4 points

APPLIED PART: 6 points

To pass the exam, you must obtain at least the 50% of the score corresponding to each one of the parts.

THEORETICAL PART

1. **(1 point)** Design a wording of an exercise to be solved by means of the operation $3 \times 4 \times 7 \times 8$, and another one in which it is necessary to compute a division where 23 is the divisor and 12 is the remaining.
2. **(1 point)** Define and put examples for each one of the following concepts: singleton set, co-prime numbers, mixed recurring decimal number, irreducible fraction, rational number.
3. **(1 point)** Describe the algorithm followed to multiply two decimal numbers, and apply it on an example.
4. **(1 point)** Design a teaching situation to introduce in a 4th grade class the concept of fraction, at least in two different frameworks.

APPLIED PART

1. **(1 point)** In a cider press they want to bottle an amount of cider bottles which is between 800 and 850, so that they can distribute them in an exact number of boxes of 12 units per box and they can share out them exactly in chests of 30 bottles each. How many bottles will be dispensed?
2. **(1 point)** Different discounts are applied in an online store with home delivery depending on the amount of money spent in the purchase: if this amount is up to 30 euros then a 5% discount is applied; from 30 euros and up to 60 euros the 10% is applied; and from 60 euros the 15% is applied. In addition, the cost of the home delivery is 0,5 euros per item. If a customer buy 3 items of type A for 3,65 euros each, 4 items of type B for 4,98 euros each and 7 items of type C for 2,29 each, how much will he/she pay finally for all the items and their home delivery?
3. **(1 point)** $\frac{4}{7}$ of a group of 70 animals are dogs; from them, $\frac{3}{5}$ has black spots. Calculate, numerically and graphically, the number of dogs which are not dogs, as well as the number of dogs that do not have spots.
4. **a) (0.5 points)** If an inch is 25,4 millimetres, compute (with an accuracy of 5 decimals) how many inches are 75 millimetres.
b) (0.5 points) What is the irreducible fraction of millimetres corresponding to an inch? Express this fraction as a mixed number.
5. **(1 point)** César Augusto died when he was 77 years old and when Julio Cesar was 56 years old. If the last one was born in the year 42 B.C., which year was Cesar Augusto born in?
6. **(1 point)** At least one of the following services is offered in each one of the 47 rooms of a student residence: toilet, kitchen or internet access. 30 of those rooms have toilet, 13 have kitchen and 27 have internet access. Moreover, 7 of them have kitchen and toilet, 9 have kitchen and internet access and 11 have toilet and internet access. If there are 5 students interested in a room with toilet, kitchen and internet access, will the residence satisfy those needs?

**ARGUE YOUR ANSWER IN ALL THE QUESTIONS. THE USE OF THE CALCULATOR IS NOT ALLOWED.
DELIVER ALSO THE CALCULATION SHEETS**