

Nombre:

Fecha:

1. (1p) Mark True or False according to the text. You'll obtain 0,2 points for each correct answered and you'll lose 0,1 points for each wrong answer.

- | | | | | |
|----|---------------------|----|-------------------------------|--------------------------------|
| 50 | isn't a divisor of | 10 | ☐ True | ☐ False |
| 6 | is a divisor of | 18 | ☐ True | ☐ False |
| 20 | is a multiple of | 5 | ☐ True | ☐ False |
| 48 | isn't a multiple of | 16 | ☐ True | ☐ False |
| 18 | isn't a divisor of | 18 | ☐ True | ☐ False |

2. (1p) Find the first multiple of twelve after four hundred.

3. (1p) Find all the divisors of sixty.

4. (1p) Apply the divisibility criteria by two, three, five, seven and eleven to the number 7245

5. (1p) Define prime number and composite number. Find out whether the numbers 211 and 213 are prime or composite numbers.

6. (1p) Decompose the following numbers into prime factors: *a)* 135 *b)* 150

7. (1p) Calculate the Lowest Common Multiple and Greatest Common Divisor of 135 and 150.

8. (1,5p) A group of 48 children and 36 adults go camping in the mountains. They sleep in cabins. Each cabin has the same number of people. They pay for the fewest number of cabins possible. However, the adults do not share a cabin with children and the children do not share a cabin with adults. How many people sleep in each cabin? How many cabins do they need?

(*cabin: cabaña, fewest: menor, share: compartir*)

9 (1,5p) Con baldosas rectangulares que tienen de ancho 18 *cm* y de alto 12 *cm* queremos construir un cuadrado colocando unas junto a otras. ¿Cuál es el cuadrado más pequeño que podemos lograr? ¿Cuántas baldosas serían necesarias?

1. (1p) a) True b) True c) True d) False e) False
2. (1p) $423 \div 12 \Rightarrow C = 35, R = 3 \Rightarrow 36 \cdot 12 = 432$
3. (1p) $\text{div}(60) = \{1, 60, 2, 30, 3, 20, 4, 15, 5, 12, 6, 10\}$
4. (1p) No es divisible por dos porque su última cifra no es 2 ni cero.
Es divisible por 3 porque la suma de sus cifras (18) es 3.
No es divisible por 5 porque su última cifra no es cinco ni cero.
Si es divisible por 7 porque $724 - 10 = 714 \Rightarrow 71 - 8 = 63$ que es 7.
No es divisible por 11 porque $(7 + 4) - (2 + 5) = 4$ no es 11 ni cero.
5. (1p) Número primo sólo tiene dos divisores, el 1 y él mismo.
Número compuesto tiene más de dos divisores.
211 es primo porque no es divisible por 2, 3, 5, 7, 11 ni 13
 $211 \div 13 \Rightarrow C = 16$, no hay más divisores primos posibles.
213 no es primo porque es divisible por 3.
6. (1p) a) $135 = 3^3 \cdot 5$ b) $150 = 2 \cdot 3 \cdot 5^2$
7. (1p) $LCM(135, 150) = 2 \cdot 3^3 \cdot 5^2 = 1350 \quad \wedge \quad GCD(135, 150) = 3 \cdot 5 = 15$
8. (1,5p) $GCD(48, 36) = 12 \Rightarrow$ Sleep 12 people in each cabin.
We need $48 \div 12 = 4$ cabins for the children and $36 \div 12 = 3$ cabins for the adults.
 $4 + 3 = 7$ cabins in total
9. (1,5p) $LCM(18, 12) = 36 \Rightarrow$ El cuadrado más pequeño mide 36 cm de lado.
Harían falta 2 baldosas para la base y 3 para la altura, 6 baldosas en total.