

**BACCALAURÉAT GENERAL**  
**ÉPREUVE SPÉCIFIQUE DES SECTIONS EUROPÉENNES**  
**MATHÉMATIQUES - ANGLAIS**

**CORRIGÉ DU SUJET 9**

For the first part, the expected points are :

- Give examples and uses of numbers in general. Like, for example: triangular numbers; prime numbers (maybe the fact that the set of prime numbers is infinite)...
- Comment on the quotation “*God created the natural numbers, and all the rest is the work of man.*”

**Exercise**

1. a.  $284 = 71 \times 4$

The list of all the factors of 1,184 is: 1, 2, 4, 8, 16, 32, 37, 74, 148, 296, 592, 1,184.

b. Compute the sums.

2. a.  $1,184 = 2^5 \times 37$  and  $1,210 = 2 \times 5 \times 11^2$  so the GCD of 1,184 and 1,210 is 2.

The LCM of 1,184 and 1,210 is :  $2^5 \times 37 \times 5 \times 11^2 = 716,320$ .

b. You need the GCD of 1,184 and 1,210 if you want to simplify the fraction  $\frac{1,184}{1,210}$

$\frac{1,184}{1,210} = \frac{2 \times 592}{2 \times 605} = \frac{592}{605}$  it's a reduced fraction because we simplified by all the common factors.

c. You need the LCM of 1,184 and 1,210 if you want to add the two fractions  $\frac{65}{1,184}$  and  $\frac{153}{1,210}$ ,

because you need the lowest common denominator in order to add the two fractions.

$$716,320 = 1,184 \times 5 \times 11^2 = 1,184 \times 605$$

$$716,320 = 1,210 \times 2^4 \times 37 = 1,210 \times 592$$

$$\frac{65}{1,184} + \frac{153}{1,210} = \frac{65 \times 605}{1,184 \times 605} + \frac{153 \times 592}{1,210 \times 592} = \frac{39,325}{716,320} + \frac{90,576}{716,320} = \frac{129,901}{716,320}$$