



Arithmetics, HCF

EXERCISES SHEET

Exercise 1

Given that $a = \frac{3}{2}$, $b = -5$, $c = \frac{2}{3}$

Calculate : $A = a + b - c$ $B = a - (b - c)$ $C = a \times \frac{b}{c}$

One of these results is a decimal number. Which one?

Exercise 2 :

Given that $a = 2$, $b = -\frac{3}{4}$, $c = \frac{1}{6}$, say if each statement is true or false, justifying your answer.

1. $\frac{a-b}{c}$ is decimal
2. $\frac{a}{b-c}$ is irrational
3. $\frac{b}{a \times c}$ is a non decimal rational number

Exercise 3:

A rectangular garden is $\frac{4}{5}$ hm long and $\frac{1}{4}$ hm wide.

- 1 .Calculate its perimeter in hectometers
2. Calculate its area in hectometers squared

Give your results first as fractions, then as decimals.

Exercise 4:

Rewrite each sentence using the word “multiple”

- 15 is a factor of 45 :
35 is divisible by 5 :

Exercise 5:

Rewrite each sentence using the word “factor”

- 12 is divisible by 4 :
132 is a multiple of 11:

Exercise 6:

Write a sentence about each equality using the words “multiple” or “factor”

1. $135 = 159$
2. $\frac{58}{2} = 29$
3. $36 \times 7 = 252$

Exercise 7:

1. Write a list of the factors of each of the two numbers and deduce their HCF.
 - a) 36 and 54 b) 63 and 64 c) 60 and 96
2. Explain why 7 cannot be the HCF of 154 and 3780

Exercise 8:

Finding the HCF Activity

In each case, write the list of factors of the two numbers to find their common factors :

1. Factors of 96 :.....
Factors of 28 :.....
Common factors of 96 and 28 :.....
2. Factors of 68 (68 =) :.....
Factors of 28 :.....
Common factors of 60 and 28 :
3. Factors of 40 (40 =) :.....
Factors of 28 :.....
Common factors of 40 and 28 :.....

Etc. ?

4. Complete the following equalities :
5. What do you notice ?

HCF(96 ;28) =

1. HCF(68 ;28) =

HCF(40 ;28) =

..... =

..... =

..... =

..... =

Exercise 9:

Calculate the HCF of a) (420 ; 300) b) (3570 ; 2310) c) (238 ; 195)

Exercise 10 :

Using Euclid's Algorithm, find the HCF of the following pairs of numbers and say if they are coprime

a) 569 and 456 b) 20153 and 11516 c) 2451 and 1118

Exercise 11 (Brevet 2004):

a) Prove that 65 and 42 are coprime

b) Prove that $\frac{520}{336} = \frac{65}{42}$

Exercise 12:

For the 1st May, Julie has 182 sprigs of lily of the valley (Fr : muguet) and 78 roses. She wants to make the biggest number of identical bouquets using all the flowers. How many identical bouquets can she make? What is each bouquet made up of?

Exercise 13:

A rectangular room 540 cm long and 300 cm wide is covered by identical, uncut squares of carpet. What are the dimensions of these squares, knowing that we want to use the least number possible? How many carpet squares were used?

Exercise 14 (Brevet 2004):

Calculate the expression $A = \frac{9009}{10395} - \frac{2}{5} \times \frac{3}{2}$.

Give the result as a fraction in its simplest form.

Exercise 15:

1) Are the numbers 756 and 441 coprime ? Justify.

2) Is the fraction $\frac{756}{441}$ in its simplest form ? If not, write it in its simplest form, showing your calculations.

3) Calculate the sum $\frac{756}{441} + \frac{19}{21}$.

Exercise 16 (Brevet 2004):

In a bathroom we want to cover the wall beside the bath with a whole number of square tiles whose side is the biggest whole number of cm possible.

1) Find the length in cm of the side of a tile, knowing that the wall is 2.10 m high and 1.35 wide.

2) How many tiles would be needed ?

Exercise 17 :

Christopher wants to put a fence round a rectangular field. The dimensions of the field are 39 by 135m. He wants to put posts at regular distances of more than 2 m and measured by a whole number in metres. Moreover he needs a post at each corner. What is the distance between two posts? How many posts does he need to put in?

Exercise 18 :

The dimensions of a crate are 105 cm, 165 cm and 105 cm. We want to make identical cubic boxes, as big as possible, which enable the crate to be completely filled.

What must the side of the box be and how many boxes can be put in the crate?