# COMPUTER LESSON 3

1.- Let A = {0, 2, 4, 6, 8, 10}, B = {0, 1, 2, 3, 4, 5, 6} and C = {4, 5, 6, 7, 8, 9, 10} be three different sets. Find:

a.- $A \cup B \cup C$

b.- $A \cap B \cap C$

c.- $(A - B) \cap (A - C) \cap (B - C)$

| | |
|---|---|
| $A \cup B \cup C$ | |
| $A \cap B \cap C$ | |
| $(A - B) \cap (A - C) \cap (B - C)$ | |

2.- Let E be, the set of even numbers that are less than 200. The following sets are also defined:

$A = \{x \in E / x, \text{ multiple of } 5 \}$

$B = \{ x \in E / x \geq 150\}$

Find $A \cap B$, $A^c$, $B^c$, $A \cup B$.

Compute $|A|$.

| | |
|---|---|
| Definition of E | |
| Definition of A | |
| Definition of B | |
| $A \cap B$ | |
| $A^c$ | |
| $B^c$ | |
| $A \cup B$ | |
| $\|A\|$ | |

3.- Verify that the application $f: \mathbb{R} \to \mathbb{R}$ is injective, where $f(x) = -3x + 4$.

| | |
|---|---|
| Input | |
| Output | |

4.- Let f and g two applications, where $f(x) = x^2 + 1$ and $g(x) = x + 2$. Compute $f \circ g$ eta $g \circ f$.

| | |
|---|---|
| $f \circ g$ | |
| $g \circ f$ | |

5.- Let $f(x) = ax$ and $g(x) = cx + d$, where a, c and d are real constants. Determine the values of a, c and d for which $f \circ g = g \circ f$.

| Result | |
|---|---|

6.- Define the following $f(x)=\begin{cases}\frac{357}{101}x+\frac{47}{111} & x\leq 0\\ 2x-1 & x>0\end{cases}$ function and compute f(-1/2).

| Definition | |
|---|---|
| f(1/2) | |

7.- Factorize 10848 and 137562 as a product of prime numbers.

Result:

10848 =

137562 =

8.- Find the value of n that verifies $V_{n,3} = V_{n,4}$.

| Input | |
|---|---|
| Result | |

9.- How many groups composed of 5 students can be formed in a class with 100 students?

| Input | |
|---|---|
| Result | |

10.- Find the GCD and LCM of 177650 and 101898.

| GCD (177650,101898) | |
|---|---|
| LCM (177650,101898) | |