

Exercise 1

1-13=1101 23=10111

2-1111=15 110011=51

3- $\log_2(201)=7,65=8\text{bit}$

4-

1	1	1	1	1	1	1	1	1
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$$=2^0+2^1+2^2+2^3+2^4+2^5+2^6+2^7=2^8-1=255$$

Exercise 2:

1- Not x and x = false

X	Not x	Not x and x
True	false	false
False	True	false

2- $\text{not } ((x > 5) \text{ and } (x < 12)) = \text{not}(x > 5) \text{ or } \text{not}(x < 12) = (x \leq 5) \text{ or } (x \geq 12)$

3- $a \text{ and } (\text{not } a \text{ or } b) = (a \text{ and not } a) \text{ or } (a \text{ and } b) = \text{false or } (a \text{ and } b) = a \text{ and } b$

Exercise 3:

N°	A	B	Q	R
1	/	/	/	/
2	15	4	/	/
3	15	4	0	/
4	15	4	0	15
5 True	15	4	0	15
...				
	15	4	3	3

2- yes there is an error in the program in line 5 while (R>=B) do ; The semi colon make the program enter in infinite loop so to correct it we have while (R>=B) do

3-The goal of this program is the division of A by B

Exercise 4:

program euclid;

var a,b,r : integer ;

begin

readln(a,b) ;

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repeat
    r:=a mod b;
    a:=b;
    b:= r;
until r=0;
writeln('le gcd = ',a);
readln;
end.
```