Exercice 1

1 a) 1 Go débit 30 Mo/s

↳ 1×10^9 o ↳ $30 \times 1 \times 10^6$ o/s.

$t = 10^9 / 30 \times 10^6 = 33,33$ s

b) 1 Go débit 150 Mo/s

$t = 10^9 / 150 \times 10^6 = 6,66$ s.

2) download → téléchargement (reception)

upload → ~~téléchargement~~ téléversement (emission)

- 1 Go à 41,53 Mbit/s

↳ $t = 1 \times 10^9 \times 8$ (bits) $/ 41,53 \cdot 10^6 = 192,63$ s

- 1 Go à 10,63 Mbits.

↳ $= 1 \times 10^9 \times 8 / 10,63 \times 10^6 = 752,59$ s

- 1 Go $\Rightarrow \frac{8 \times 10^9 \text{ bits}}{1 \times 10^3} = 8$ s

0,3 en IEEE 754

$0,3 \times 2 = 0,6$

$0,6 \times 2 = 1,2$

$0,2 \times 2 = 0,4$

$0,4 \times 2 = 0,8$

$0,8 \times 2 = 1,6$.

$0,6 \times 2 = 1,2$

$0,2 \times 2 = 0,4$

$0,4 \times 2 = 0,8$

$0,8 \times 2 = 1,6$

$0,0100\,1100\,1100\,1100\,1$

$0,6 \times 2 = 1,2$

$1,00\,1100\,1100\,1100\,1 \times 2^{-2}$

mantisse

exposant $127 - 2 = 125$

$0111\,1101$

3 7 11 15 19 23

0 0111 1101 001|1001|1001|1001|1001|1001 11

↑

s

$exp_2 = 125$

arrondi

Esercizio 1

1) $(-33)_{10}$

+33	0010 0001
C1	1101 1110
C2 = C1+1	1101 1111

$(-33) = (1101\ 1111)_{C2}$

$(+100) = 0110\ 0100$

$(+100)_{C2} = 0110\ 0100$

```
      1111 1
 -33  1101 1111
+
+100  0110 0100
    -----------
   1| 0100 0011
       ↑      ↑↑
      64      2 1  -> (67)_10 donc OK.
```

Esercizio 2

-1	-2	-3	-4	-5	-6
0,5	0,250	0,125	0,0625	+0,03125	+0,015625

1a) $(111,10101)_2 = 4+2+1+0,5+0,125+0,03125$

$= 7,65625$

$(10011,001)_2 = 16+2+1+0,125 = 19,125$

Exercice 2

c) = 25,375 — 25 — 1 1001

0,375 × 2 = [0] 750

0,750 × 2 = [1] ,50.

0,50 × 2 = [1]

$25,375 = (0001\ 1001,011)_2$

d) = 0,125 — 0

0,125 × 2 = [0] 250

0,250 × 2 = [0] 5

0,5 × 2 = 1

$0,125 = (0,001)_2$

Exercice 3

$-25,375$ — $1\ 1001,011 \rightarrow -1,1001011 \times 2^{4}$ (mantisse)

signe $127 + 4 = 131$

1	1000 0011	1001 011	0000 0000 0000 0000
↑		7	16
-1			

$-0,125$ — $0,001 \rightarrow 1,0 \times 2^{-3}$

$x = 127 - 3 = 124$

1	0111 1100	0	23
↑			
-1			

- 32,75 -> 1 0 00000,11

-> 1,0000011 -> x 2^5

-> 127+5 -> 132 15 23

1	8	8

0 1000 0100 000 0011 0000 0000 0000 0000

Exercice 4

d = $64 (0110 0100)

D = $44 (0100 0100)

= $23 0010 0011

% = $25 0010 0101